USAID FIRMS PROJECT

Fisheries Policy Report and Recommendations for Sindh

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Data Page

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Abstract:

The policy framework for the management of the fisheries of Sindh province, Pakistan, was prepared following a request by sector authorities of the Government of Sindh, by an international consultant employed by the USAID Firms Project, and with inputs from resource persons and stakeholders. The framework outlines an approach to sector management based on international best practices, agreements, covenants and laws, and voluntary instruments, as the FAO Code of Conduct for Responsible Fisheries and related Technical Guidelines. It addresses major issues and challenges of the sector, as overcapacity, resource depletion, use of illegal and destructive fishing gear and environmental degradation. The framework also considers post harvest and trade related aspects, and proposes a strategy to address governance issues plaguing the sector, advocating a fully participatory approach to management inclusive of autochthon, bona fide fishers with the aim of facilitating ownership and improved transparency and accountability. The framework proposes an implementation strategy, which will involve a statutory body, as a fisheries committee or counsel, with legitimate, basic democratic representation of all stakeholders, private and public, including civil society and academia, and mandated to provide authorities and the legislative with feasible, acceptable and equitable recommendations for sector management and development.

Acronyms

ADB	Asian Development Bank
BEE	Business Enabling Environment
CA	Competent Authority
CCRF	Code of Conduct for Responsible Fisheries
DG	Director General
FD	Fisheries Department
DOLF	Department of Livestock and Fisheries
EEZ	Exclusive Economic Zone
EU	European Union
EC	European Commission
FCS	Fishermen Cooperative Society
FAO	Food and Agriculture Organization of the United Nations
FDB	Fisheries Development Board
GOP	Government of Pakistan
GOS	Government of Sindh
IOTC	Indian Ocean Tuna Commission
IPOA	International Plan of Action
IUCN	International Union for the Conservation of Nature
IUU	Illegal, Unreported and Unregulated (Fishing)
KFHA	Karachi Fish Harbour Authority
KoFHA	Korangi Fisheries Harbour Authority
MCS	Monitoring, Control and Surveillance
MDG	Millennium Development Goal
MFD	Marine Fisheries Department
MINFAL	Ministry of Food, Agriculture and Livestock
MINFA	Ministry of Food and Agriculture
MSA	Marine Security Agency
NACA	Network of Aquaculture Centres in Asia-Pacific
NPOA	National Plan of Action
NGO	Non-governmental Organization
NIO	National Institute of Oceanography

OECD	Organization for Economic Cooperation and Development
PSEA	Pakistan Sea Food Exporters Association
RFMO	Regional Fisheries Management Organizations
STOFA	Sindh Trawler Owners and Fishermen Association
STREAM	Support to Regional Aquatic Resources Management
SOW	Scope of Work
TCP	Technical Cooperation Programme
UNIDO	United Nation Industrial Development Program
VMS	Vessel Monitoring System
WAPDA	Water and Power Development Authority
WWF	World Wildlife Fund

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Executive Summary

The need to put in place a fisheries policy framework for the Sindh province fisheries sector was spurred by several factors and developments:

- The dramatic decrease in landings due to overfishing, illegal and destructive fishing and environmental degradation, both in marine and inland waters, causing
- suboptimal contribution of capture fisheries to income and employment, food security and sustainable livelihoods of coastal and inland fisher folk,
- the progressively diminishing contribution of the sector to domestic fish supplies,
- decreasing or stagnating exports of fish and fisheries products and,
- dissipation of overall sector rents because of depleted stocks and profound deficiencies in the post harvest sector.

Several policies have been formulated for the fisheries sector *senso largo* in Pakistan, e.g. with ADB and FAO/NACA assistance, and addressing marine and inland fisheries and aquaculture. Implementation has been sketchy at best, however, and most observers conclude that sector management has been and still is largely absent.

The policy framework proposed is based on the assessment of the present situation of the sector which resulted in:

- A brief analysis of the present situation of inland, coastal and marine fisheries of the province, and including post harvest and other annex activities.
- A critical assessment of the existing legal and regulatory framework and its enforcement, in particular regarding pertinence, efficiency, effectiveness, impact and sustainability of management measures and efforts entailed.
- Their compliance with national and international laws, covenants, agreements and guidelines, binding or voluntary. The policy framework draws heavily on FAO' CCRF and its Technical Guidelines and other voluntary instruments for content and structure.
- An implicit analysis of gaps regarding e.g. institutional capacities, legal and regulatory provisions, resource and capacity management, including combating, deterring and eliminating illegal, unregistered and unreported (IUU) fishing and enforcement, environmental issues, deficiencies in processing and marketing and institutional and equity aspects of sector development.

The results of the assessment led to the identification of the core problem i.e. "Overfishing, illegal fishing and environmental degradation result in unsustainable use of living aquatic resources". The hypothesis put forward for the formulation of the policy framework is that only if resources exploitation becomes sustainable again can other problems, issues and challenges be tackled: problems subsumed under the first bullet cause all the effects shown in the subsequent bullets.

Therefore, the overarching goal of the policy framework is proposed as: "Fisheries resources, both marine and inland, are exploited in a biologically sustainable, economically viable, socially equitable and inclusive, and environmentally responsible fashion".

Achievement of the proposed goal and implementation of the policy framework will hinge on two assumptions, i.e. that (i) access limitations, are implemented (by the sector administration, or

community based organizations, or both under a co-management arrangement), and supported by federal and provincial law, and, (ii) that, on province and central level, there is political will to take the necessary steps to enact and enforce access limitations, beyond considerations of short term political gains.

Strategies derived from the overall goal above address the issues of overfishing/illegal and destructive fishing in both inland and coastal marine waters, environmental degradation, post harvest issues, socioeconomic and institutional aspects and options for future effective management arrangements of the sector.

For the marine capture fisheries, the proposed strategy focuses *a priori* on the prerequisite of sustainable resource use. It proposes to follow two voluntary instruments put forward by FAO's CCRF, i.e. IPOAs to manage fishing capacity and to eliminate and deter illegal, unreported and unregulated (IUU) fishing, by formulating and implementing respective NPOAs. The strategy proposes approaches to reduce the fishing fleet and overall effort, use of selective gear, enforcement of existing and revised laws, and additional technical measures.

Regarding inland fisheries, limiting access is also proposed as first priority, implying respective legal and regulatory provisions together with full consideration of equity as well as economic aspects. Focus should be on the deprived indigenous small scale fishers and their communities, their empowerment and the emergence of representative, legitimate, democratic and sustainable fisher organizations.

This strategy is also proposed to protect and restore the coastal environment, i.e. to introduce community based fisheries management and/or co-management, and territorial use rights in fishing, in order to empower fishers to safeguard the resources they depend on for their livelihoods. Another strategy is to embed environmental protection in integrated coastal area management plans, including the establishment of marine and other protected areas and the holistic, interprovincial management of the Indus ecosystem at large. Overall, environmental protection and management would be effectively underpinned by building alliances with other aquatic resources users in order to deter pollution resorting to the "Polluter Pays Principle"

Strategies to improve post harvest practices proposed recognize that "top down" enforcement would be difficult to achieve and would probably incur prohibitive costs. Therefore, the strategies proposed aim at cooperation and consensus, facilitated by a participatory reassessment of the regulatory framework, in compliance with international norms and standards, to improve competiveness and, eventually, regain comprehensive access to affluent markets.

Strategies to improve handling and storage on board involve incentives for boat owners to invest in improved facilities and practices, either by subsidies or, for example, by preferential access to port facilities. Incentives should be closely linked to efforts to reduce fleet size proposed above, discourage substitution of effort (except for conversion to selective gear) and not encourage increased efforts (perverse incentives).

Strategies to improve conditions on land address the present situation of the two main fishing ports in Karachi and Korangi. A holistic approach to create an institutional set up conducive to sustainably improved post harvest practices involving a co-management arrangement, similar to a public private partnership, is suggested. The strategy will require a rethinking/rearrangement of the present oligopolistic use of facilities by FCS and mole owners/middlemen; it would also benefit from devolving Korangi Fishing Harbor to GOS and relocating fleet segments accordingly.

Attention is given to the smaller, commercial landing sites (jetties) and dispersed informal landing sites used by small-scale fishers. At the moment these sites lack basic conditions for sani-

tary and hygienic handling, storage and transport of landings which makes certification problematic and impedes value added marketing.

In addition to the focus on capture fisheries, environment and post harvest prescribed in the SoW of the assignment, issues related coastal aquaculture are briefly discussed, to the extend where they may become relevant to the issues and challenges of marine fisheries in the future.

The policy framework advocates an implementation strategy based on equitable stakeholder participation and mobilization and empowerment of small scale fishers presently excluded from political participation. The strategy aims at transparency of all decision making processes and accountability of decision makers. It could involve a statutory body, as a fisheries committee or counsel with legitimate, basic democratic representation of all stakeholders, private and public, including civil society and academia, and mandated to provide the legislative with feasible, acceptable and equitable recommendations for sector development. Other functions could include donor relations, public relations to improve sector visibility and media coverage.

It should be supported by technical working groups, e.g. for marine and inland fisheries, environment and post harvest sector, on a professional basis and adequately remunerated. The groups would work on a regular/continuing basis to provide technical recommendation to the statutory body, underpinned by robust data and information.

The policy framework addresses crosscutting issues as human rights, gender and climate change throughout and where appropriate, and strongly expresses, as an overall assumption for its implementation, the need for improved governance across the board in order to achieve tangible results and chances of sustainability.

1. Introduction

The need to put in place a fisheries policy framework for the Sindh province fisheries sector was spurred by persistent and increasingly alarming developments negatively effecting sector performance.

To facilitate the process of formulating the policy framework, the Sindh Department of Livestock and Fisheries (DOLF) requested assistance from the USAID Firms Project. Following the request, the Project recruited and fielded (1 April to 8 May 2014) an international consultant, Mr. Ulrich W. Schmidt. For the consultancy, he was provided with the objectives below, as stated in the Scope of Work (see Appendix 1).

Objective:

The overall objective of this consultancy is to :

i)Review inland and coastal fisheries sector of the province; evaluate their performance against international best practices; review the existing sector policies, laws and regulations
ii)Identify regulatory and institutional deficiencies and distortions, if any, in the current provincial policies, laws, and regulations
iii)Develop a draft for international best practice Fisheries Policy framework that promotes economic growth in the Fisheries sector of Sindh.

During his work, the consultant was guided by the client, the USAID Firms Project, and the principal stakeholder on Government of Sindh (GOS) side, the DOLF. An inception report was delivered 14, April 2014 (see Appendix 2).

The draft policy framework was reviewed by resource persons for consultation and comments on April 21, 2014, and presented to principle stakeholders and the client on April 28, for comments and feedback, and on May 5 (Secretary, DOLF) and May 7, 2014 (USAID Firms Project) respectively. A final draft of the policy will be formulated based on further comments in June 2014.

The policy framework will undergo consultations with stakeholders on province, district and local levels, and relevant comments will be integrated as required. Also, the framework will be aligned with ongoing parallel assessments, as theongoing “Rapid Market Appraisal for Fisheries” commissioned by the USAID Firms Project. The framework may be complemented by an aquaculture sub component policy. It is therefore important to emphasize that the policy framework needs to be considered a “living document”, and not a blue print frozen in time.

The policy framework is structured in a main report providing information and debate as background, proposed goal, strategies and plans/activities following the methodology presented in Chapter 2, a tabular presentation (matrix) thereof, the policy itself including a logical framework (in Annex 1), and appendices.

Major inputs in terms of data and information were provided by DOFL, national and international fisheries experts and public and private sector stakeholder representatives and civil society groups including national and international NGOs. However, and in full appreciation of these most valuable inputs, the assessment can be no more than a “snap shot” image of the present situation, compiled and interpreted by the author. Therefore, the draft policy framework proposes plans/activities beyond strategies and goal on an indicative basis only.

The consultant expresses his gratitude to all stakeholders and resource persons consulted during the assignment, for the valuable information and insight provided as well as for the constructive feedback received on the first draft of the policy. It needs to be underlined, however, that the findings and recommendations provided in this report are those of the consultant only, and imply no commitment on the part of the client and/or the principle stakeholder.

2. Approach and Methodology

The approach employed for the formulation of the policy framework for the fisheries sector of Sindh province presented below followed three sequential steps:

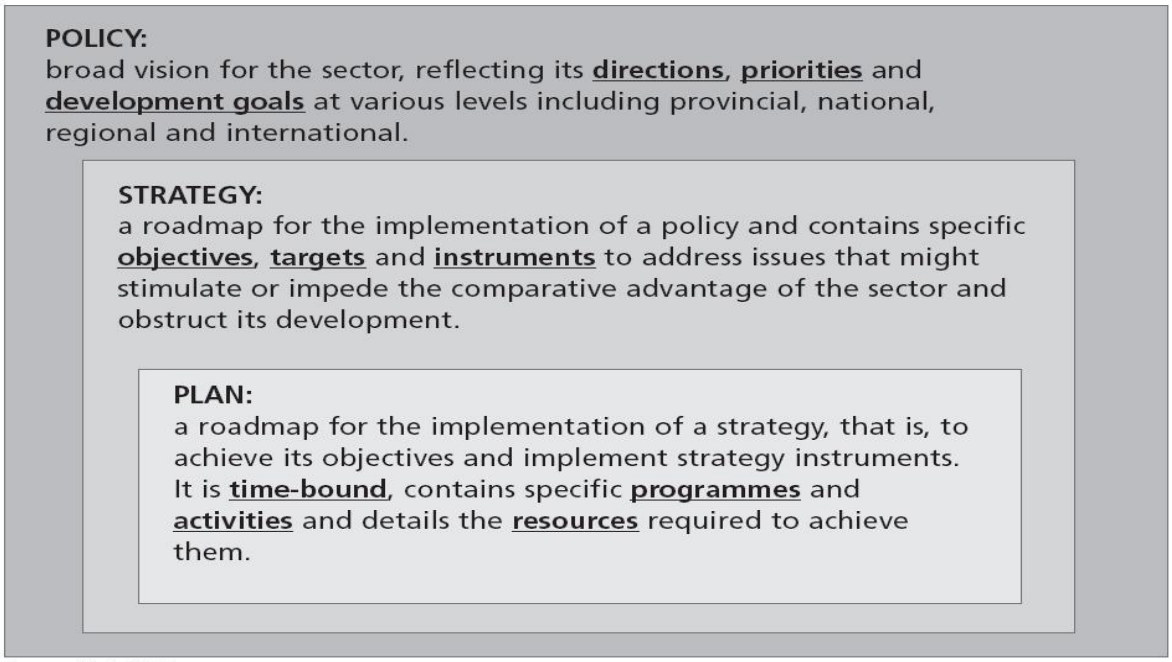
- The identification of a sector policy, which takes into account sector objectives as expressed by the provincial authorities, in the context of national objectives and the evaluation and validation of issues and challenges confronting the sector at present discussed below. The proposed policy entails an overall policy goal, which relates to broad postulates as sustainable resource use, economic growth and employment creation, food security, poverty alleviation and other MDGs, and environmental conservation.
- The design of a set of strategies which propose how the policy goal should be met, including cross-cutting strategies.
- The formulation of a plan or plans/activities for the achievement of the proposed strategies and, ultimately, of the identified goal. The plan (s) specifies the desired results which, if realized, would support each strategy.

The approach will facilitate the construction of an overall log frame matrix of the proposed policy, translating into overall objective, specific objectives (outputs) and results. Given the scope and limited time frame of the formulation effort, activities to achieve outputs will be proposed only for the Firms Project priority actions as underlined in the Scope of Work (SoW).

The approach is schematized in the figure below[1].

[1] FAO, Report of the Expert Consultation on Improving Planning and Policy Development in Aquaculture, FAO Fisheries Report, No. 858. Rome 2008

FIGURE 1
Definition and role of policy, strategy and plan



Source: FAO, 2008a.

Figure 1 Definition and role of policy, strategy and plan

The methodology employed included an assessment of the present situation of the fisheries sector of Sindh province and the identification of key issues and challenges, in accordance with the SoW of the assignment. The assessment involved:

- A review of documents available initially, technical, legal/regulatory, and relating to the institutional and stakeholder landscape of the sector.
- Identification and review of additional documents identified during the assessment.
- Consultation of sector agencies and other public entities on provincial level, as well as with development assistance agencies, projects, and national and international NGOs.
- Consultation of private sector stakeholders, including fisher and boat owner associations, processing and marketing ventures, civil society and academia etc., within the limits to mobility imposed by the security situation.
- Information provided by the ongoing Rapid Market Assessment for Fisheries commissioned by USAID/Firms Project.

The assessment resulted in:

- A brief analysis of the present situation of inland, coastal and marine fisheries of the province, and including post harvest and other annex activities.
- A critical assessment of the existing legal and regulatory framework and its enforcement, in particular regarding pertinence, efficiency, effectiveness, impact and sustainability of management measures and efforts entailed.

- Their compliance with national and international laws, covenants, agreements and guidelines, binding or voluntary. The policy framework draws heavily on FAO' CCRF and its Technical Guidelines and other voluntary instruments for content and structure.
- An implicit analysis of gaps regarding e.g. institutional capacities, legal and regulatory provisions, resource and capacity management, including combating, deterring and eliminating illegal, unregistered and unreported (IUU) fishing and enforcement, environmental issues, deficiencies in processing and marketing and institutional and equity aspects of sector development.

The framework presents background and finding, suggests an implementation strategy and recommends a way forward, including options for technical and financial assistance. The implementation strategy advocates stakeholder participation as a central principle and instrument, to facilitate ownership and legitimacy, and improved sector governance as an overall condition for sustainable change.

3. The Proposed Policy Framework

3.1 Past Fisheries Sector Policy

Several policies have been formulated for the fisheries sector *senso largo* in Pakistan, e.g. with ADB and FAO/NACA assistance, and addressing marine and inland fisheries and aquaculture. The policy formulated three objectives:

- Increase the contribution of fisheries and aquaculture sectors to the national economic growth,
- Increase the contribution of fisheries and aquaculture sectors to poverty alleviation and,
- To increase the contribution of fisheries and aquaculture to food security.

With respect to these policies and other technical assistance efforts to improve sector performance, implementation has been sketchy at best, and most observers conclude that sector management has been and still is largely absent. Critics of the 2006 policy framework remarked that the policy outlines the ends but does not clearly provide means to achieve them[2].

Other problems have been associated with the process of devolution of sector management from federal to province level, institutional divides and disintegrated competencies, lack of budgetary provisions, reluctance to *de facto* enforcement of legal and regulatory provisions, and, again, lack of stakeholder participation. To these sector inherent problems, issues and challenges with regards to governance have to be added, with lack of transparency and accountability, often facilitating decision making motivated by short term political gain.

3.2 Existing Legal and Regulatory Provisions

Until 2011, Pakistan's constitution delegated the overall management of marine fisheries to the Marine Fisheries Department under the Ministry of Food, Agriculture and Livestock (MINFAL). It was based on the Exclusive Fishing Zone (Regulation of Fishing) Act, 1975, which was amended 1993, regulating the management of fishing in the Pakistan's EEZ in accordance with the UN Convention of the Law of the Sea[3]. It provides for:

• Licensing and management of fishing operation in the EEZ of Pakistan

• Fishing craft subject to navigational regulation

• Prohibition of illegal fishing, including fishing with dynamite and poison

• Closed seasons and prohibited areas

• Penalties for contravention, including seizure and disposal of fishing craft, gear and fish catch[4].

In 2011, with the adoption of the 18th amendment of the constitution of 2011, responsibilities for marine and inland capture fisheries were devolved to the coastal provinces Sindh and Balochistan, together with MINFAL and other line ministries.

[2] M. Khan, K. Jahangir, K. Hoydal, Competence Strengthening in Fishery Institutions in Pakistan, A Review of Structure and Functioning of Public Institutions in the Fishing Sector of Pakistan, 2011

[3] Other legal provisions include: (i) The Karachi Fisheries Harbour Authority Ordinance No.11, 1984, which provides the legal basis to carry out efficient operation of harbour facilities and for periodic inspection of hygienic conditions of processing plants, ice plants, cold storage and other related activities, and (ii) The Coastal Development Authority Act (Sindh, Act No. XXVIII, 1994) provides the legal basis for planning, development, operation, management and maintenance of coastal areas, including development of fisheries, livestock, horticulture and agriculture.

[4] Adapted from FAO, Pakistan Fisheries and Aquaculture Profile, FID/CP/PAK, Rome 2009

3.2.1 Deep Sea Fisheries Management

The Marine Fisheries Department (MFD) based in Karachi is mandated with the implementation of deep sea fishing policy. It is the oldest federal sector department (established in 1951) and works under Ministry of Port and Shipping. Its primary responsibility is management of fisheries in the EEZ beyond the 12 miles territorial waters. It is also responsible for fish stock assessment, inspection and quality control of seafood being exported from Pakistan, compilation of national fisheries statistics, and fishery related oceanographic, biological and technological research. The Department is responsible for implementation of Exclusive Fish Zone (Regulation of Fishing) Act (1975) and Pakistan Fish Inspection and Quality Control Act (1997).

Since the middle of the last decade, however, little if any deep sea fishing (beyond the continental shelf) is recorded, attributed by observers and resource persons to scarcity of stocks because of overfishing and "fishing down the food chain", and steep increases in operational costs because of rising fuel prices.

3.2.2 Fisheries Management in Territorial Waters

The provincial governments of Sindh and Belochistan were mandated with the responsibility for marine fisheries management within the limits of territorial waters, i.e. 12 nautical miles (n.m.) from the baseline (shoreline) by the Pakistani Constitution before its 18th Amendment[5]. Most costal fishing grounds in Pakistan lie within these limits, although in Sindh province the continental shelf extends to up to 80 n.m. from the shore.

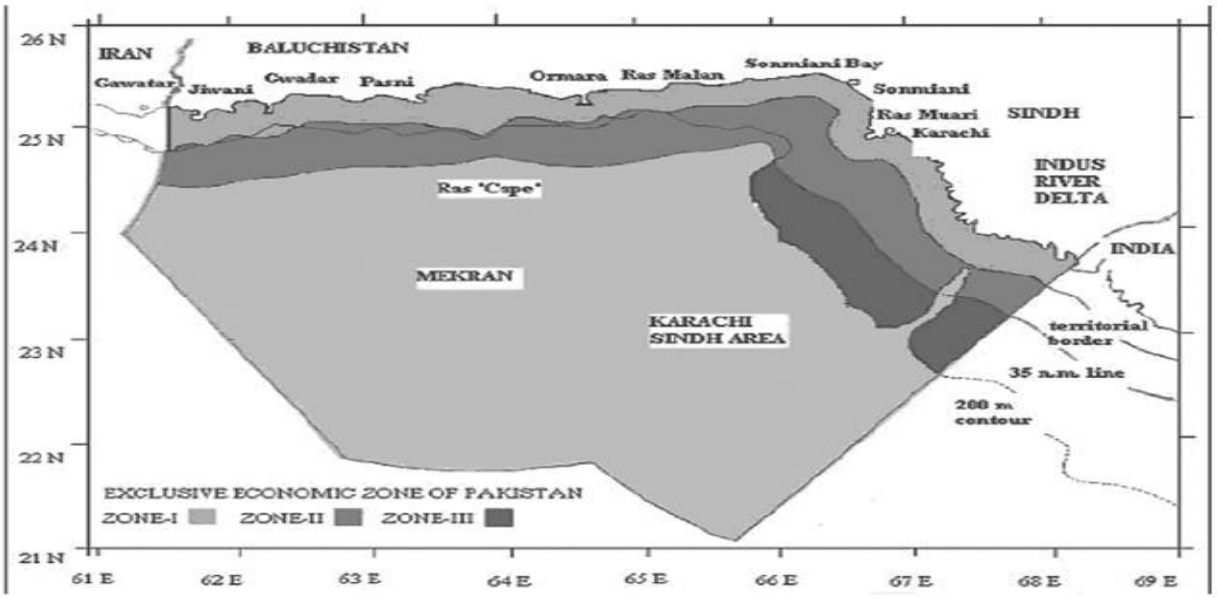


Figure 2 The Zoning of the Pakistani EEZ

In Sindh province, the Sindh Fisheries Department of the Department of Fisheries and Livestock is mandated with fisheries management, both in inland and marine waters. The legal framework governing the sector is based on the Sindh Fisheries Ordinance of 1980 and amendments thereof (last 2003). The respective regulatory framework was gazetted in 1983. It includes provisions for licensing of fishing vessels in territorial waters of the province and regulations for marketing and processing of fish and shrimp etc. Management tools include prohibition of illegal

[5] The Federal Legislative List listed functions pertaining to fisheries to be executed by Federal Government: export (No. 27), fishing and fisheries beyond territorial waters (No. 37), and federal surveys (No. 35). Functions performed by the federal government falls within these subjects or are covered under Rules of Business.

and destructive gear, mesh size regulations, closed areas, and a closed season, with the later promulgated as law[6]. Various amendments have been made including licensing of inland water fisheries in 2005.

3.2.3 Inland Fisheries Management

The management of inland fisheries is the responsibility of an Inland Fisheries Department under the Sindh Fisheries Department. It has its headquarter in Hyderabad, with Deputy Directors and Assistant Directors on district levels. Responsibilities include management of capture fisheries of in freshwater bodies, aquaculture and culture based fisheries, registration of fishermen and fishing vessels and issuing of fishing licenses, enforcement of other provincial legal provisions, surveys of water bodies, extension services, collection of fisheries data, sanitary and quality control of landings, development of landing facilities, auction halls, markets, and cold storage etc. The mandate also includes promotion of stakeholder participation in fisheries management, assistance to fishermen communities and safeguarding and enhancement of the environment.

3.3 Present Policies/Goals

The three policy goals for fisheries as set by GOP are similar to those formulated for the 2006 Fisheries and Aquaculture Policy, i.e. (i) increased economic growth, (ii) poverty alleviation, and (iii) food security[7]. In pursuance of these goals, GOP has committed to the principles of good governance, transparency in decision-making and finance management, fairness and equity, respect of international treaties, laws and commitments, participation of all groups and stakeholders, including women, in decision-making processes, and sustainable environmental resource use, management and protection. As principle stakeholder, GOP, through its fisheries management agencies on central and provincial level, private sector and producer organizations were identified[8].

3.4 The Proposed Policy Goal

While in total agreement with the principles and stakeholders referred to, the policy goals of GOP, even if only presented in their broadest sense, merit reflection. Major issues and problems of the sector reported by stakeholder and resource persons consulted are:

- significant decrease in landings due to illegal and overfishing and environmental degradation,
- suboptimal contribution of capture fisheries to income and employment, food security and sustainable livelihoods of coastal and inland fisher folk,
- reduced contribution of the sector to domestic supply and to export of fish and fisheries products9, and
- dissipation of sector rents due to depleted stocks and acerbated by profound deficiencies in the post harvest sector.

[6] Exclusive Fishery Zone (Regulation of Fishing) Act 1975, S.R.O. 329(1): The period commencing first June and ending July is to be the period during which and the entire area of the zone within which catching of shrimps shall be prohibited.

[7] FAO Pakistan Fishery and Aquaculture Country Profile, Rome 2009

[8] MINFAL/FAO, National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan, Part 1, Islamabad 2007

[9] In terms of value exports increased due to steep increases of world market prices

This overall assessment was shared by all stakeholders and resource persons consulted. It is not entirely in line with the official figures published by the "Economic Survey of Pakistan" of June 2013, according to which sector growth was 0.7 percent during the year 2012-2013 as compared to 3.8 percent growth 2011-2012.

The results of the assessment led to the identification of the core problem of sector development, i.e. "overfishing and illegal fishing, and environmental degradation, result in unsustainable use of living aquatic resources." The hypothesis put forward for the formulation of the policy framework is that only if resources exploitation becomes sustainable again can other problems, issues and challenges be tackled: problems subsumed under the first bullet cause all the effects shown in the subsequent bullets.

Box 1 State of marine resources in Sindh and Belochistan[10]

According to the MFD/ FAO Fisheries Resource Appraisal Project the present situation of the marine resources of Sindh and Balochistan provinces is, for the major economically important species groups:
:

- Demersal overfished to depleted
- Shrimp depleted
- Squid, cuttlefish fully fished to overfished
- Crabs, other crustaceans overfished
- Tuna presumed fully fished, no recent data
- Sharks extinct except for coastal demersal species

The table above shows the degree to which resources have been depleted, i.e. to the extent where certain stocks will ultimately collapse, livelihoods will be lost, food security will be impaired, supply uncertainty will disrupt supply and value chains and the sector's contribution to the economy will become insignificant.

Therefore, the overarching goal of the policy framework is proposed as:

Fisheries resources, both marine and inland, are exploited in a biologically sustainable, economically viable, socially equitable and inclusive, and environmentally responsible fashion

It is important to underline here that sustainable resource use is not possible without limiting access, either by a limited access regime, or by robustly regulating open access to the resource. This, however, would require changes of the present constitutional provisions governing access to fisheries resources nationwide. Therefore, achievement of the proposed goal and the implementation of the policy framework will hinge on three assumptions, i.e. that (i) access limitations can be implemented by sector administration/enforcement agencies, or community based organizations, or both under a co-management arrangement,(ii) are supported by federal and provincial law, and (iii) on province level there is political will to take the necessary steps to enact and enforce access limitations, beyond considerations of short term political gains.

Limiting access by input restrictions or voluntary reduction of fishing effort (e.g. by providing incentives for fleet reduction). is proposed in accordance with FAO's CCRF, which postulates, in Article 6.3, that:

[10] L. Paul Fanning, CTA FAO Fisheries Resource Appraisal Project, pers. communication

"States should prevent overfishing and excess fishing capacity and should implement manage measures to ensure that fishing effort is commensurate with the productive capacity of the fishery resources and their sustainable utilization".

3.5 Strategies for Achieving the Goal

Strategies derived from the overall goal above address the issues of overfishing/illegal and destructive fishing in both inland and coastal marine waters, environmental degradation, post harvest issues, socioeconomic, gender and institutional aspects, and options for future effective management arrangements of the sector. The underlying strategic element which should be applied rigorously is the precautionary approach of the CCRF and related measures:

"States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures".[11]

Box 2 The precautionary approach of the CCRF

7.5.1 States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.
7.5.2 In implementing the precautionary approach, States should take into account, inter alia, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality and the impact of fishing activities, including discards, on non-target and associated or dependent species as well as environmental and socio-economic conditions.
7.5.3 States and sub regional or regional fisheries management organizations and arrangements should, on the basis of the best scientific evidence available, inter alia, determine:
a) Stock specific target reference points, and, at the same time, the action to be taken if they are exceeded; and
b) stock specific limit reference points and, at the same time, the action to be taken if they are exceeded; when a limit reference point is approached, measures should be taken to ensure that it will not be exceeded

3.5.1 Management of Marine Coastal Fisheries

For marine capture fisheries, the proposed policy framework focuses *a priori* on the prerequisite of sustainable resource use. There are two major drivers of stock depletion; overfishing and illegal fishing. Therefore, the policy proposes to follow two voluntary instruments put forward by FAO's CCRF, i.e. IPOAs to manage fishing capacity and to eliminate and deter illegal, unreported and unregulated (IUU) fishing. In addition, it proposes efforts to stop environmental degradation of coastal areas, in particular of breeding and nursery habitats.

3.5.1.1 Strategies for Capacity Management

Addressing overfishing, the policy framework proposes the formulation and implementation of a NPOA to manage fishing capacity in the province. The primary aim of the NPOA is to reduce fishing capacity and total fishing effort to levels which allow stocks to be harvested sustainably.

[11] Adapted from FAO CCRF, Rome 1995

It encompasses, however, also socioeconomic considerations as livelihood implications of capacity reduction and regular monitoring of checks and balances of management measures.

The NPOA will build on, review and, if warranted, revise existing legal and regulatory provisions targeting capacity management, recommend measures to improve enforcement and identify further input and output controls and technical measures to bring fishing capacity to sustainable levels.

Box 3 NPOA fishing capacity management12

Development of national plans and policies

- States should develop, implement and monitor national plans of action for managing fishing capacity, taking into account, inter alia, and the effect of different resource management systems on fishing capacity.
- States should develop the means to monitor fishing capacity systematically and accurately, and to regularly assess any imbalance with available fishery resources and management objectives.
- States should develop, adopt and make public national plans for the management of fishing capacity and, if required, reduce fishing capacity in order to balance fishing capacity with available resources on a sustainable basis. These should be based on an assessment of fish stocks and giving particular attention to cases requiring urgent measures and taking immediate steps to address the management of fishing capacity for stocks recognized as significantly overfished.
- States should give due consideration, in the development of national plans, to socio-economic requirements, including the consideration of alternative sources of employment and livelihood to fishing communities which must bear the burden of reductions in fishing capacity.
- States should periodically review the implementation of their national plans to manage capacity for the purpose of identifying cost effective strategies for increasing effectiveness.

3.5.1.2 Plans/Activities to Facilitate Capacity Management

In Sindh, the NPOA will target, on priority basis, the fleet section which accounts for the bulk of fishing capacity and total effort, i.e. the fleet of mechanized semi-industrial vessels, in particular the bottom trawlers targeting shrimp. They are central to overfishing and resource depletion because of (i) their numbers, estimated at about 2500, far beyond the recommended maximum (below 1000), (ii) because they employ mesh sizes (“mosquito nets”) in their cod ends, which unselectively catch 95 and more percent of so called “trash fish”, including large quantities of juveniles of potentially very valuable demersal species, and (iii) inevitably destroy the seabed.

Other fleet segments add to total effort and contribute to overfishing, i.e. to a total fishing effort which has led to catastrophic losses of stock abundance and diversity. The proposed NPOA capacity aims a priori at reducing fleet size by input controls, e.g. a moratorium on construction, registration and licensing of new vessels, except when at least one vessel is retired for each new vessel permitted, incentives to retire excess vessel two/three for one, buyback themes etc (see below).

All activities under the NPOA need to be based on a participatory appraisal of present effort. Participatory appraisal approach and methodology need to make special efforts to include the

[12] Adapted from “Technical Guidelines for Responsible Fisheries, 4, suppl. 3, FAO Rome, 2008”

most vulnerable fishers, i.e. the traditional, resident bona fide fishermen who depend on fishing for their livelihoods as a last resort. Their dependence and vulnerability result from their low socio political status and representation and, compared to migrant wage labour and investors from outside the sector, extremely limited geographical and occupational mobility.

Participatory appraisal and identification of management measures should include, but not be restricted to:

- Exploration and assessment of feasibility of strategies to reduce fleet size, as an effective, consensus based moratorium on construction of additional vessels, either by one by one vessel replacement obligation, one to two (or three vessel) retirement arrangements, or by outright buy back schemes. Objective of fleet reduction efforts would be to bring down the number of bottom trawlers to a maximum of 1000 while enforcing compliance with minimum mesh size regulations.
- Enforcement of measures to limit/regulate access through monitoring of vessel registration and licensing and according to exiting legal provisions as the closed season for shrimp trawling.
- Strengthening of other enforcement instruments, as MCS and on board/on shore inspections, comprehensive enforcement of other legal and regulatory provisions of the 1980 Fisheries Ordinance and 1983 subsequent regulations.
- A review and revise present zoning regulations, including considering the option of applying the CCRF ecosystem approach to the fisheries (EAF) in acknowledgment of the actual extend of the continental shelf.
- An assessment of the feasibility of other technical measures as seasonally closed areas and marine protected areas (MPAs).
- The elaboration, together fishers and other private and public sector stakeholders, the MFD/FAO Fisheries Resource Appraisal Project and national researchers, of species/species group and gear specific (see below) management plans, including spatial and temporal restrictions. This Process should include a comprehensive review and, if needed, revision of existing regulations.
- Inception of a comprehensive participatory catch and effort monitoring and processing and management of the data for fisheries management.

The participatory approach is adamant for legitimacy and ownership of capacity management. Top down implementation by sector authorities rarely had any impact on the ground and typically lacks transparency and accountability.

3.5.1.3 Strategies to Combat IUU Fishing

Illegal, unregistered and unreported (IUU) fishing is, after overcapacity and climate change, considered the greatest threat to resource sustainability, not only in Pakistan but worldwide. It occurs in virtually all waters, territorial, national and international.

IUU fishing in Pakistan takes place, predominantly, in territorial waters and, in Sindh on the continental shelf, which extends beyond the 12 n.m. zone. Most important issue is the continuing and blatant non compliance with existing regulations as minimal mesh sizes, prohibition of destructive fishing practices, and closed seasons and closed areas.

At the time of this writing, Pakistan appears to have no major issues regarding compliance with internationally binding agreement and legal provisions, nor with regulations and management plans by RFMOs. According to Pakistani authorities, there are no foreign fishing vessels flying

the Pakistani flag in international waters, or foreign vessels fishing under joint venture agreements with Pakistani companies in the Pakistani EEZ; neither are Pakistani vessels or vessels under Pakistani flags listed as IUU vessels in accordance with Article 30 of Regulation (EC) No 1005/2008 of the EU13.

There are some issues with non compliance of IOTC recommendations regarding maximum length of drift nets and possible underreporting of drift net catch and effort, however.

The policy framework proposed suggests, nevertheless, tackling domestic IUU issues in the context of a NPOA IUU fishing. The IPOA IUU fishing14 and subsequent guidelines formulated by FAO are inclusive of illegal, unregistered and unreported fishing in territorial waters:

"Illegal fishing refers to activities conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations,

Unreported fishing refers to fishing activities which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations;

Unregulated fishing refers to fishing activities in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law."

Following these definitions, most coastal and inland fishing activities in Sindh province can be classified as IUU fishing.

The NPOA IUU fishing will complement the NPOA capacity in order to have a policy framework based on best international practices, comprehensively addressing domestic IUU issues, and providing a precautionary instrument for IUU challenges which may arise in the future in the international and regional context. Furthermore, the NPOA would also comply with obligation of the European Union Council Decision (EU) Nr.1005/2008 which requires states to formulate and implement a NPOA IUU fishing in order to be eligible to export fish and fisheries products to the EU.

[13] Official Journal of the European Union L 43/47, 13.February 2014
[14] International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)' FAO, 2001

Box 4 The IPOA IUU Fishing[15]

The IPOA IUU fishing, objectives and principles
The objective of the IPOA is to prevent, deter and eliminate IUU fishing by providing all States with comprehensive, effective and transparent measures by which to act, including through appropriate regional fisheries management organizations established in accordance with international law.
The IPOA to prevent, deter and eliminate IUU fishing incorporates the following principles and strategies. Due consideration should be given to the:
Special requirements of developing countries in accordance with Article 5 of the Code of Conduct.
Participation and coordination: To be fully effective, the IPOA should be implemented by all States either directly, in cooperation with other States, or indirectly through relevant regional fisheries management organizations or through FAO and other appropriate international organizations.
An important element in successful implementation will be close and effective coordination and consultation, and the sharing of information to reduce the incidence of IUU fishing, among States and relevant regional and global organizations.
The full participation of stakeholders in combating IUU fishing, including industry, fishing communities, and non-governmental organizations, should be encouraged.
Measures to prevent deter and eliminate IUU fishing should be based on the earliest possible phased implementation of national plans of action, and regional and global action in accordance with the IPOA.

3.5.1.4 Plans to Combat IUU Fishing

The most critical threats and the most devastating impact, in territorial waters and beyond, to resource sustainability and restoration are constituted by destructive fishing practices as use of extremely small mesh sizes, in semi industrial bottom trawls, smaller “gujja” trawls operated in estuaries and creeks, “katra” encircling nets, and, most damaging, the stationary “bullah” nets. All cause mortality of large amounts of juveniles of commercially and economically important species.

All stakeholders consulted (processors and exporters as the Pakistan Fisheries Export Association (PFEA), Sindh Trawler Owner and Fishermen Association (STOFA), INGOs as WWF and IUCN, fishing harbour authorities etc.) were aware of the economic wastefulness of these operations and the potential and possibly irreversible collapse of certain stocks if present practices continue.

Accordingly, there appears to be a general agreement among stakeholders not only to reduce fishing capacity as discussed above, but also to deter and prevent all unselective and destructive gear including bottom trawling using small mesh sizes, and to eliminate bullah nets and trawling in creeks and estuaries. Several possible activities were put forward:

Elimination of bullah net operations and bottom trawling in creeks and estuaries. Given the weak and disfranchised organization of fishing communities, especially in the more remote and isolated landing sites, chances for bottom up strategies are not evident at the moment and most resource persons were in favour of applying “force”, i.e. enforcing the law and elimination the

[15] Adapted from the IPOA op.cit.

nets by designated law enforcement agencies[16]. However, this approach is will be costly and, if applied top down, may not have sustainable impacts.

Box 5 The socio-political context of the use of bullah nets

> Some stakeholders doubted, however, that the fishers using bullah nets would be able to share concerns with respect to the destructive impact of this type of unselective fishing. They explained that more often than not fishers using bullah nets do so in collusion with (and obliged by) feudal Landlords (Waderas). The Waderas have extensive and entrenched powers over their "subjects" based on traditional bondage systems under which fishers, their families and communities have lived for centuries. They charge fees to fishers for operating bullah nets and, representing their feudal fiefdoms politically, many of them in the Sindh Assembly, would oppose any enforcement of existing or future legal provisions which would diminish their income.

To overcome this constraint, parallel long term efforts of GOS authorities, private sector stakeholders and civil society would be needed. These could include awareness raising among fishers, their families and communities, not only regarding the need for responsible fishing and stock recovery but also their universal human rights. Other effort could include empowerment of communities vis a vis their feudal masters, assistance to enable the formation of representative and legitimate fisher organizations and funds to compensate for lost incomes. Fishers should also receive training in alternative, selective fishing (gillnets, longlines, traps and pots etc., eventually squid jigging and light fishing) to be employed once the stocks have recovered, together with technical assistance and facilitated market access to improve post harvest practices and value added opportunities. Particular focus should be on women, because of their economic role and participation e.g. in post harvest activities, and regarding gender inclusive promotion of human rights.

On the long term, avenues should be explored to give territorial use rights in fishing (TURFs) to small scale bona fide fishers and their communities and to introduce community based fisheries management (CBFM) and/or co-management. Given the entrenched power structures of the feudal or semi feudal socio political regime in many rural areas, this process will be lengthy and difficult to say the least. However, examples from other fisheries, both marine and inland, show that given the right to manage their resources themselves, and under an overarching policy framework provided by government, fishers and representative, legitimate and democratic fisher organizations can and will oppose short term financial interests for the sake of sustainable resource use.

Right based and territorial use right based CBFM has proven to be most feasible in delimited areas as creeks and estuaries and in inland waters. A prerequisite is an enabling legal framework which provides exclusive access to fishing grounds managed by communities and provides for excluding outsiders, and political will and resources to enforce it.

Box 6 Right based Community Fisheries in Cambodia[17]

[16] The 1980 Sindh Fisheries Ordinance includes provisions for a total ban on the use of destructive fishing gear, (and for a closed season for shrimp during June and July).

[17] Kaing Khim, DDG Fisheries Administration, Cambodia; Presentation at the Regional Workshop on "Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security", Bangkok, 2013

Because of grave fisheries governance issues, in particular conflicts between small-scale fishers and large-scale concessionaires (fishing lot owners), increasing overfishing and poverty in small-scale fishing communities, the Cambodian Government decreed a first fisheries reform in October 2000 which abolished 56% of the fishing lots), and a second reform in March 2012 which cancelled the remaining lots. Fishing management rights were given to local users (poor, small-scale fishers, both men and women) to manage, protect and develop the natural fisheries resources sustainably through a co-management arrangement with the government. The legal basis for this arrangement was provided in Article. 59 of the Fishery Law, which states that: "All Cambodian citizens have the rights to form Community Fisheries in their own areas on a voluntary basis to take part in the sustainable management, conservation, development and use of fishery resources."
Roles, rights and obligations of CFi and the responsible government agency, the Fisheries Administration (FiA) of the Ministry of Agriculture, Forestry and Fisheries (MAFF) are clearly defined in the sub decree on CFi management, which defines roles and duties of the CFi as:

- Participate in managing and conserving fisheries resources in compliance with the by-laws and community fishing area management plan which are in conformity with Cambodian laws and other legal instruments related to fisheries;.
- Guarantee that all members of the Community Fisheries have equal rights in the sustainable use of fisheries resources as stipulated in the by-laws;
- Participate in establishment of conservation areas within the community fishing area, protection and reforestation of inundated forest and mangrove forest, and restoration of shallow streams and lakes to improve ecosystems and fisheries environments;
- Implement the by-laws of the Community Fisheries and formulate the community fishing area management plan;
- Implement the community fishing area agreements with the FiA in order to manage the fisheries resources sustainably;The official registration and recognition of the CFi by MAFF requires:
- CF committee members elected and members' list;
- CF by-law and internal rule/regulation (approved by CFi members, signed by the CFi chief),
- CFi fishing area agreement which includes size of the fishing area (CFi boundary map, including, conservation areas size), period of the management and use of the fishing area, conditions for management and use of use of fishing gears.Major benefits of the CFi co-management have been identified as follows:
- Access rights to fishery resources of CFi members are more secured;
- The flooded forest and fishery resources in the CF fishing area are well protected; Fisheries resources are increased for those CFi tenure functioning well;
- There is overall increase in participation of men, women and youth of the fish related activities, CFi management and conservation activities;
- The CFis have been building trusts, unity and fostering cooperation in the community. This function is important, even more than catching After more than a decade of implementation lessons learnt are:
- CFi has empowered people and given freedom to access resources which has in turn resulted in reduction in poverty and better resource conservation and management.
- Government agencies, local authorities and non-government development partners assistance in terms of empowerment and building capacity of CFis for fisheries resources management have been the main factor for the progress achieved.

To facilitate responsible fishing of all other fleet segments following the CCRF and the NPOAs capacity and IUU the policy option proposed is to formulate and implement the species/species group and gear specific management plans recommended above. With respect to gear restrictions and bans of destructive gear, a participative assessment of small scale, artisanal and semi industrial fishing gear should precede potential revisions of present regulations, because gear specific management plans need to be based on broad consensuses in order to be accepted, owned and complied with by fishers.

FAO's CCRF Art. 7.6.4 recommends in this respect: "The performance of all existing fishing gear, methods and practices should be examined and measures taken to ensure that fishing gear, methods and practices which are not consistent with responsible fishing are phased out and replaced with more acceptable alternatives. In this process, particular attention should be given to the impact of such measures on fishing communities, including their ability to exploit the resource."

Plans should be conducive to replacing destructive gear by more selective and habitat friendly gear18. Incentives could include technical assistance (gear technology) and preferential access to alternative gear. Change to selective gear could be linked to fleet reduction efforts, with a vessel construction quota giving preference to vessels employing selective gear.

It will be necessary to review the existing monitoring, control and surveillance (MCS) situation, not only to ensure the implementation of the NPOA IUU fishing but also to ensure compliance with all management strategies, plans and activities proposed. MCS is a crosscutting issue within the context of the proposed policy framework and of central relevance for all sector components. The review should focus on planned and executed MCS activities, the institutional set up including status/capacity of inspectors, practice of inspections on board and at sea, reporting and follow up, and collaboration of MCS agencies (MSA, Coast Guard) with the fisheries administration.

3.5.2 Management of Inland Fisheries

Inland water fisheries in Sindh province have provided about two thirds of total inland fish production[19] during the last decade. The importance of the sub sector is seen as decreasing, however, according to local resource persons[20]. A multitude of factors have been blamed for this trend, .e.g. construction of dams for irrigation and hydropower, excavation of navigation channels, wetland reclamation for agriculture and urbanization, water extraction and transfer, pollution by waste disposal and agricultural run-off, and saltwater intrusion. These multiple use patterns of inland waters result in issues and challenges for development and management of inland fisheries which are somehow different from those discussed above for marine fisheries.

Multipurpose use of resources is governed by multiple legal and regulatory frameworks, with national and provincial policies which typically give preference to non fisheries users. As a result, inland fisheries management authorities often have little control over the resource they are mandated to manage and management needs to compromise with other users.

In Sindh, management authorities comprise the Fisheries Department of the Ministry of Fisheries and Livestock and the Pakistan Water and Power Development Authority (WAPDA) under the Ministry of Water and Power, which comprises a Directorate of Fisheries mandated to manage and develop fisheries in six major reservoirs under its control.

[18] Particular emphasis regarding this strategy element was voiced by STOFA representatives.
[19] M. P. Wasim, Issues, Growth and instability of Inland Fisheries Fish Production in Sindh (Pakistan), Pakistan Economic and Social Review, Volume 45, No. 2, 2007
[20] idem

Surprisingly, there is no body/organization to manage the Indus River and his tributaries and associated water bodies in a holistic fashion, contrary to international best practice of river basin management by commissions/authorities. This leaves the system at the mercy of many different and often conflicting interests; the lack of holistic management is probably the single most important factor its continuing degradation.

As reference of international practice, CCRF guidelines[21] referring to inland fisheries note that: "..... fishery management of inland waters concentrates on three components of the environment/fish/fishery system

- Management of the fishery - regulation oriented activities concerning the activities of the fishers and their social and economic context such as licensing, control of mesh size, setting of closed seasons, control of markets, subsidies, etc. Management policies here should be aimed at: a) limiting access to the fishery so that excess effort is avoided; and b) limiting the use of destructive and harmful fishing gears
- Management of the fish - control over the magnitude and size of the fish population by stocking, introduction of new species and other enhancement techniques as appropriate. Management here is aimed at establishing the most cost-effective approaches for enhancement.
- Management of the environment - this is pursued at two different levels: a) negotiating and arranging for adequate environmental conditions of water quality, quantity, timeliness of flow, habitat diversity etc.; and b) promoting physical improvements to improve the support capacity for fish."

From the available literature and the consultations conducted during the assessment it transpires that management of the fisheries and of the environment are largely inexistent; measures to manage fish (see second bullet above) have been reported, however. With respect to fisheries management and resource allocation, the subsector was historically governed by a dichotic system of large scale fishing by contractors and atomistic small scale fishing by indigenous fishers.

This resulted in a situation where the most productive inland fishing grounds of Sindh province were exploited by contractors comprising local landlords or other influential people under limited term lease agreements. Most of these agreements (contracts) led to the indiscriminate extraction of a maximum of bio mass for short term economic gains and consequent dramatic losses in abundance and diversity of stocks. Small scale local fishermen and their families, living in similar feudal bondage as the small scale coastal fishers, were either engaged, by the contractors, in destructive fishing practises or displaced, often forcibly, and replaced by migrant workers.

Displaced bona fide indigenous fishers were thus progressively relegated to poor fishing grounds, which induced use of unselective gear, and became fishers of last resort[22], because of lack of alternative income and employment opportunities. This resulted in the present extreme poverty of most inland fishing communities, living under marginal conditions, with high levels of illiteracy, and lack of political voice and participation.

In 2005, pressure by civil society and advocacy groups on the one side, and significant dissipation of economic rent (despite marginal labour costs) from large scale lease operation on the other led to the abandonment of the contact/auction system. The system was replaced by li-

[21] FAO Fisheries Department, Inland fisheries, FAO Technical Guidelines for Responsible Fisheries No. 6. Rome, 1997

[22] This term is used for fisheries with low or no entry barriers and limited, often no exit options

censing, which created a de facto open access regime: licenses are provided without considerations of resource availability, further acerbating stock depletion. As they are issued with little transparency and accountability by the authorities, the former contractors still have the upper hand regarding access to the resource, by power and influence and/or by obtaining proxy licenses.

3.5.2.1 Strategies for Inland Fisheries Management

The desolate situation of inland fisheries in Sindh province outlined above strongly suggests rethinking of past approaches to management (or the lack thereof). The first conclusion is that limiting access is the first priority of a subsector policy. Limiting access requires respective legal and regulatory provisions. Such provisions will have to take equity considerations into account, as well as economic aspects, e.g. cost-effective approaches for stock enhancement; the present desolate state of the resources warrants management of the fish stocks, e.g. restocking and other appropriate enhancement techniques (see CCRF guidelines above).

With respect to equity and overall policy objectives as the MDGs and the Universal Declaration of Human Rights focus should be on the deprived indigenous small scale fishers and their communities, and related gender considerations. This can be done sustainably if conditions similar to those postulated for small scale coastal fishers are met, e.g. the following:

- Empowerment of fishers the emergence of representative, legitimate and democratic fisher organizations is facilitated and sustainable.
- Legal provisions to allow for right based fisheries, CBFM and co-management are promulgated and enforced.
- Attention is being paid to women in the communities, their present and potential role in the village economy, and potentials for their empowerment.
- Right based fisheries, CBFM and co-management are based on locally developed management plans elaborated with the full participation of resource users under conditions of basic democracy.
- Negative environmental impacts affecting small scale fishing communities are mitigated.

Resource allocation policies favouring the poor need, nevertheless, to take limits of resources into account and limit/regulate access[23] in order to provide for sustainable livelihoods and poverty reduction. Here, self determination of fishers and their communities and the application of the concept of sufficiency (with respect to livelihoods) are important elements.

[23] A central condition of regulating access is the comprehensive registration of all fishers and boats.

Box 7 Resource Sustainability and Poverty Reduction[24]

The trade-off between resource sustainability and poverty reduction has (at least) two dimensions. One is that if we allow economic growth without equity we increase the income of few at the expense of many. If, in the process fisheries resources are reallocated to the few and the many are displaced, we create poverty. However, if we reduce poverty by accommodating too many people, the carrying capacity of the resource will be exhausted. By accommodating too many, for political, humanitarian or whatever reason, will also deplete stocks/degrade the environment to the "point of no return" and bring about less poverty today at the expense of dramatically increased poverty tomorrow. Therefore allocation of resources to the poor needs to be done within the limits of the "carrying capacity" of the resource. To optimize this capacity and to maximize the number of people accommodated the concept of "sufficiency" has been identified. It defines livelihood conditions which are sufficient to allow secure and dignified existence, in full consideration of objective needs of fishers and socially and cultural acceptance of limitations of resource use.

Focus on the deprived indigenous small scale fishers and their communities should be complimented by a thorough rethinking of the former contract/auction system. The hypothesis offered is that under certain conditions this system may have certain merits:

Management of the fish stocks, e.g. introduction of new species, restocking and other appropriate enhancement techniques cannot usually be done by small scale fishers, because of lack of knowhow and capital and risks involved. Stock enhancement programmes by government agencies, on the other side, have rarely been done with sustained success because of the inherent problems of public sector institutions acting as economic players. If, in a revived contract system, the granting of leases would carry the obligation to invest in stock enhancement measures financed by the contractor under transparent and verifiable conditions, benefits would arise not only for the contractor but, with possible spill over effects, for overall productivity.

In order to make this approach economically viable for the contractor, lease agreements must be sufficiently long to provide an incentive for long-term investment. At the same time enhancement, methods and harvesting of enhanced fisheries must be strictly regulated in terms of:

- clear delimitation of the water surface allocated under the lease agreement (to prevent poaching in adjacent areas),
- gear restrictions, minimum sizes and prohibition of destructive fishing methods,
- regulations/international obligations regarding the introduction of exotic species, and
- Adherence to international standards of working and living conditions of wage labour employed[25].

Compliance to regulations needs to be closely monitored to prevent return to past practices. Monitoring should involve a multi stakeholder body and follow a participatory and transparent approach.

[24]U.W. Schmidt, Dezentralization,governance and poverty : Determinants of Unsustainability, lessons Learned from the Visayan Sea, Philippines, and the Tonle Sap Great Lake, Cambodia, 3rd FAO Workshop on Factors of Unsustainability and Overexploitation in Fisheries, Siem Reap, 2004

[25] In many rural areas of Pakistan "bonded labour' is still a rampant practice, in spite of having been outlawed first in 1930, last in 1995 (Convention concerning Forced or Compulsory Labour (no 29) 1930).

Beyond exploring these policy options it will be adamant to address environmental issues and problems. As pointed out above, fisheries are not necessarily the priority of policy and decision makers in the context of water resource management. In order to mitigate negative impacts on fish production, a larger set of stakeholders, decision makers and line ministries need to be involved to determine how inland water resources are allocated with respect to macro goals set at national level and needs and means on provincial, district and local levels.

In order to raise the profile of inland fisheries with the public (including fishing communities) it would also be beneficial to fund and implement a programme of **awareness-raising regarding** freshwater fish bio-diversity, natural fisheries environments and **sustainable, responsible fishing**.

The CCRF guidelines for inland fisheries refer to this: "*Responsibility for the protection of aquatic ecosystems usually lies outside the fishery. States should, therefore, plan for the conservation of aquatic environments in the context of their multi-purpose use. Many of these activities are fundamental to the functioning of modern society and are economically of such importance that their limitation in the interests of conservation becomes hypothetical. All that can be done in many cases is to keep the number of such interventions to a minimum and to limit their impacts."*

3.5.2.2 Plans/Activities to Manage Inland Fisheries

It is proposed to comprehensively identify and determine plans and activities in the course of consultation to be carried out after the policy framework is finalized and adopted. Measures which can be identified beforehand include:

- Classification of water bodies according to criteria as present use (for fisheries and other purposes), users and interaction/interdependencies among users, state of stocks, the environment and potential future threats to either, existing assistance efforts etc.
- Analysis of stakeholders, public, private sector and fishers and other rural dwellers.
- Assessment of the present legal and regulatory framework for inland water fisheries including patterns and determinants of resource allocation.
- Review of present enforcement practices, institutional responsibilities human and logistics available etc. and projection of means and needs under the policy framework sketched above, e.g. comprehensive registration of all fishers.

A survey to assess water bodies and fishing grounds according to their best future use, i.e. small scale capture fishing or large scale culture based exploitation and stock enhancement is recommended. The survey should cover potential opportunities for habitat restoration and stock recovery, for example by establishing fish sanctuaries, restore wetlands and no take zones up- and downstream of head works, dams and barrages.

3.6 Environmental Issues & Challenges

Both the marine and inland fisheries ecosystems are under immense pressure, not only from within the sectors, as by over- and destructive fishing, but also from the outside. For the inland fisheries major environmentally detrimental factors have been pointed out above. For the marine sector main areas of concern are industrial pollution and the unabated disposal of raw sewage in inshore waters, especially in and around Karachi. Equally alarming are urbanization and housing development, often including land reclamation activities in urban and peri-urban areas. These and other speculative developments have led to destruction of mangroves, recently for the construction of controversial coal fuelled power plants.

Box 8 Some Impacts On Fisheries Resulting From Activities In Other Sectors[26]

Pollution: This may come from land-based sources, e.g., industrial or agricultural waste dumped into rivers and carried to the coastal area, pesticide and fertiliser run-off into rivers, and sewage, or sea-based, e.g., oil spills and ocean dumping of toxic waste. Some pollution may result in an increase of productivity of coastal areas but very often it will result in its decrease. In severe cases there may be a risk to human health, e.g., through the concentration of toxic waste by shellfish. Decreased productivity will adversely affect the financial health of the fisheries sector. The fisheries sector may itself contribute to coastal pollution, e.g., via oil pollution from fishing vessels, effluent from fish processing plants and by intensive aquaculture systems resulting in organic and nutrient enrichment of the seabed and sometimes of the water column. Generally, however, the fisheries sector suffers from rather than causes pollution.
Habitat degradation: This may occur directly, e.g., as a result of mangrove clearance for various activities, coral mining, or indirectly, e.g., by sedimentation of seagrass beds and reefs due to soil run-off associated with, for example, deforestation or poor land-use practice. As with pollution, habitat degradation will affect the financial well-being of the fisheries sector. Some habitat degradation may be related to the fisheries sector itself, for example, fishing with explosives or toxic substances, and mangrove clearance and use of chemicals for aquaculture development.
Spatial conflict: This may occur where coastal fisheries and aquaculture have insecure property rights and are gradually squeezed from their traditional areas by other coastal developments (especially urban sprawl and tourism development).

Mangroves are an essential part of the marine ecosystem, serving as breeding and nursing nursing grounds for most demersal finfish, crustaceans and shellfish. Their destruction is forbidden by Pakistani law since 195827. Other legal provisions for the protection of the environment exist, e.g. the Pakistan Environmental Protection Ordinance No. XXVII, which provides for protection and conservation of the environment including ecosystems and biodiversity, the prevention and control of water pollution and pollution in general and hazardous substance and effluent emission. It also provides rules for implementing international environmental covenants.

Regarding environment and fisheries, the CCRF Art. 6.8 postulates that: “All critical fisheries habitats in marine and fresh water ecosystems, such as wetlands, mangroves, reefs, lagoons, nursery and spawning areas, should be protected and rehabilitated as far as possible and where necessary. Particular effort should be made to protect such habitats from destruction, degradation, pollution and other significant impacts resulting from human activities that threaten the health and viability of the fishery resources.”

3.6.1 Strategies for Protecting and Restoring The Environment

The strategy to protect the environment proposed above for inland fisheries, i.e. to introduce community based fisheries management (CBFM) and/or co-management and territorial use rights in fishing (TURFs) is also advocated for safeguarding the environment in inland and coastal areas. The strategy addresses environmental issues negatively impacting fisheries via the empowerment of communities for safeguarding the environment their livelihoods depend on. Examples from other fisheries in the region, e.g. in Cambodia show that fishers, through right based fisheries management, CBFM and/or co-management and representative, legitimate and democratic organizations, traditional or modern, can successfully protect fishing grounds and

[26] FAO Technical Guidelines for Responsible Fisheries. No. 3. Rome, FAO. 1996.
[27] It should be noted that, according to IUCN, GOS policy documents refer to mangroves as “wasteland” (Muhammad Tahir Qureshi, pers. communication)

critical habitat. However, it has to be reiterated that a prerequisite is an enabling legal framework and political will and resources to enforce it.

Measures to deter and prevent “free riding” in areas under community management, i.e. fishers from outside the community or semi industrial/deep sea vessels reaping the benefits of restored resources in inshore fishing grounds need to be enforced, by authorities and together with fishing communities. Free riding has been shown again and again to erode motivation for sustainable resource protection and conservation by small scale fishers.

This strategy could be enhanced by other technical measures as the establishment of marine or other protected areas, no take zones, for example in known spawning and nursing areas, larger wetland reserves and flood plains, and fish sanctuaries proposed for inland waters above. International best practices have shown that marine protected area (MPAs) can successfully include totally or seasonally protected areas, buffer zones or temporal/gear restrictions only. For Sindh province the identification and implementation of such technical measures will require participatory appraisal efforts and consultations on grass root level as well as advocacy to get fishers and the general public on board.

Regarding the ongoing deterioration of the Indus ecosystem, which affects inland as well as coastal areas, estuaries, mangroves etc. the lack of establishing a commission/authority to manage the system across provincial borders, is lamentable and not in line with international best practices. Here, apparently singular interests of riparian provinces have prevailed against the national interest of managing this ecosystem holistically for the common good.

Linked to this, environmental protection and use of coastal resources, including for fisheries and, possibly, for coastal aquaculture, should be embedded and institutionalized in an integrated costal area management plan, as part of this policy framework and streamlined with federal and Belochistan environmental and fisheries sector policies.

Another strategy is to build alliances with other users of aquatic resources in order to deter pollution resorting to the “Polluter Pays” principle. This principle was introduced first by the by OECD in 197228. The principle was adopted by the European Commission in 1987 and endorsed by the 1992 Rio Declaration on Environment and Development, Principle 16, which postulates that: “national authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.”

3.6.1.1 Plans/Activities to Protect and Restore the Environment

Protection and restoration of the environment will need to build on a broad consensus of public and private sector stakeholders, civil society, the general public and organizations representing the users of aquatic resources. Campaigns, initiatives and activities will most certainly encounter resistance from polluters and their cronies in the local political landscape, and other vested interests. To succeed they will have to be persistent, adopting a long term perspective. Plans and activities proposed here can only be preliminary and not comprehensive, possibly comprising the following efforts:

[28] Recommendation of the Council of 26 May 1972 on the Guiding Principles Concerning International Economic Aspects of Environmental Policies [C(72)128]. In the same Recommendation the Council recommended that, "as a general rule, Member countries should not assist the polluters in bearing the costs of pollution control whether by means of subsidies, tax advantages or other measures".

- Building of a multi stakeholder, intersectoral platform/forum to address fisheries related environmental issues based on participatory decision-making.
- Implementation of long term strategies to empower local fisher communities as outlined above.
- Review and, if warranted, revision of existing laws and their adequacy and comprehensiveness for reducing pollution and environmental degradation.
- Enforcement of existing laws, as the prohibition to destroy mangroves, protect conservation areas as Ramsar sites, monitoring and compliance pertaining to fisheries and non-fisheries related coastal resources.
- Review of existing enforcement competencies and capacities, enforcement practices and identification of needs for improvement, institutional, resources including human resources, finance and logistics related.
- Explore the feasibility and sustainability (biological, ecological, cost/benefit wise) of creating marine and other protected areas, mangrove reforestation and rehabilitation of aquatic habitats damaged by pollution and environmental degradation.
- Promote integrated coastal area management plans for estuaries and the Indus delta, and advocate the holistic management of the Indus ecosystem at large by an interprovincial commission or authority.

The CCRF, Art. 6.9 states that: *"States should ensure that their fisheries interests, including the need for conservation of the resources, are taken into account in the multiple uses of the coastal zone and are integrated into coastal area management, planning and development."*

3.6.2 Improvement of the Post Harvest Sector

In spite of multiple efforts by sector authorities and support by development assistance agencies[29] over the last decades, post-harvest losses are continuing to be of staggering dimension. It is estimated that more than 70 % of catches arrive at retail outlets and processing plants in conditions critical for human consumption. Degradation of quality starts on board of vessels because of poor handling and storage practices, e.g. preservation facilities as fish holds are unhygienic and ice is often insufficient and frequently contaminated.

On the piers (moles) at Karachi Fish Harbour deterioration of landings continues, with bad handling practices at auctions, during transport and in cold storage facilities. Similar situations prevail at smaller, informal commercial landing sites and facilities (jetties), and at the landing sites scattered along the coast catering for small scale coastal fishers.

According to the FAO Country Profile 2009[30], out of the total marine fish production not lost post harvest, 65 and 70 % were used for human consumption (in 2006). The rest was used for other purposes, especially reduction to fishmeal. For example, almost all of the by-catch of the trawl fisheries putrefies but is still transformed into of poor quality fishmeal. Apart from fishmeal production, depletion of stocks and reduced landings of quality fish and crustaceans have severely impacted the processing industry; a 2010 report estimated that factories were operating at only

[29] As by the EC financed "Indus for All" project, which provided insulated fish boxes.

[30] FAO Pakistan Fishery and Aquaculture Country Profile, Rome 2009

20% of capacity[31]. Over value of exports is still increasing, however, due to steep increases in world mark prizes[32].

Fish and shrimp processing includes freezing, canning, reduction to fishmeal, fish liver oil extraction on industrial level and artisanal production of dried fish, dried shrimp, shark fins, fish maws, fish roes and live marketing of lobster and crab. Freshwater fish production is usually marketed fresh for local consumption but is also exported to neighbouring countries.

Almost all of the frozen and canned products are exported, while the bulk of the processed fishmeal is used in country in the manufacture of poultry feed. Recently, foreign owned fishmeal plants exporting fishmeal have opened in Sindh. They are the main drivers of the increases in exports. Fish and fishery products contribute 1.1 % to overall exports[33].

Frozen fish and fishery products are exported to China, Malaysia, Hong Kong, Thailand, and other Asian countries. Exports to the EU, which were subjected to a "voluntary ban" by GOP, have resumed for two re-registered plants. Chilled products are on the increase, with the UAE and other gulf countries and by Singapore[34].

Processing practices comply only by a small margin with international quality, sanitary and hygiene standards. Conditions in most pre-processing facilities, e.g. where shrimp is peeled, are critically unhygienic. Regarding shrimp peeling, serious issues related to human trafficking and child labour have been reported[35].

There is a plethora of legal and regulatory provisions for post harvest practices, e.g.:

The Pakistan Fish Inspection and Quality Control Act, 1997, which deals with the registration of fish processing plants and fish exporters, and constitutions and functions of the inspection committee, which includes inspection of fish processing plants, fish exporters, and handling of fish and fishery products. It also defines the powers, duties and functions of fishery officers, and penalties for contravention by processors and exporters.

- The Pakistan Fish Inspection and Quality Control Rules, 1998, which provides a detailed description of conditions required for registration of processing plants for export, ice factories, fish handling on board fishing vessels, landing places, and fish processing establishments. It also makes provisions for the registration of testing laboratories for seafood products, and for the notification of approved cleaning materials, etc.
- The Sindh Fisheries Ordinance, 1980, which provides rules and regulations for marketing, handling, transportation, processing and storage of fish and shrimp for commercial purposes and sale of fish used for domestic and inter-provincial trade in the Province of Sindh, including a total ban on the use of destructive fishing gear, and for a closed season for shrimp during June and July.

31 M. Khan, K. Jahangir, K. Hoydal, Competence Strengthening in Fishery Institutions in Pakistan, A Review of Structure and Functioning of Public Institutions in the Fishing Sector of Pakistan, 2011

32 Faisal Iftikhar, Chairman, Pakistan Fisheries Export Association, pers. communication

33 Dr Nasim Akhtar , Enterprises Based Fisheries Sector Study and Strategic Plan for Interventions at Enterprise's Level to Enhance Quality production, May 2010

34 An in depth discussion of trade and export related issues is provided in the upcoming USAID/Firms Project "Rapid market appraisal for fisheries"

35 Peeling is mostly done by girls as young as 10 to 12 years of age, many of whom have been trafficked from Bangladesh and live under subhuman conditions

Enforcement of these provisions is inconsistent however, hampered by lack of resources and often circumvented by vested interests, showing that "top down" approach to enforcement is problematic; if strictly adhered to it would probably incur prohibitive costs as well. Therefore the strategies proposed below aim at cooperation and consensus, facilitated by a participatory re-assessment of the regulatory framework, in compliance with international norms and standards to improve competiveness and, eventually, improve and regain access to affluent markets.

3.6.2.1 Strategies for Improving the Post Harvest Sector

Regarding post-harvest practices and trade the CCRF, Art. 11.1.8, provides guidance as follows: "States should encourage those involved in fish processing, distribution and marketing to: (i) reduce post-harvest losses and waste; (ii) improve the use of by-catch to the extent that this is consistent with responsible fisheries management practices; and (iii) use the resources, especially water and energy, in particular wood, in an environmentally sound manner."

Strategies to improve handling and storage on board should involve incentives for boat owners to invest in improved facilities and practices, either by subsidies or by preferential access to port facilities. Incentives should be closely linked to efforts to reduce fleet size proposed above, not encourage substitution of effort (except for conversion to selective gear) and not encourage increased efforts (perverse incentives).

Strategies to improve conditions on land will have to address the present situation of the two main fishing ports, the Karachi Fishing Harbor (KFH) and the Korangi Fishing Harbor (KoFH). A holistic approach to create an institutional set up conducive to sustainably improved post harvest practices could involve a co-management arrangement, similar to a Public Private Partnership. Under such arrangement provincial authorities and the MFD as CA for certification would provide and enforce overall regulatory provisions according to its mandate, and private sector players, e.g. marketing agents and companies including processing companies would be allowed access and use of berthing and landing facilities, against payment of appropriate fees. To facilitate such arrangements and to better utilize its facilities, devolving KoFH to GOS is considered advantageous by most observers.

Enhancing feasibility of this strategy for KFH will require a rethinking/rearrangement of the present oligopolistic exploitation of facilities by the Fisheries Cooperative Society (FCS). In the past, the FCS has discouraged relocation of some fleet segment to KoFH[36], and may oppose competition by private sector players at KFH. Observers have frequently criticized the FSC for lack of accountability and transparence.

Box 9 The Fisheries Cooperative Society[37]

[36] S.M. Tarique, Managing Director, Korangi Fishing Harbour Authority, pers. communication

[37] Khan, K. Jahangir, K. Hoydal, *op. cit*

The Karachi Fishermen's cooperative Society was established and registered in 1945 by boat owners and traditional fishermen. It is run by a Board of Directors which comprises of 8 Directors nominated by the Government of Sindh and 7 elected by the member of FCS from various areas/village of fishermen. FCS has been established with the following aims and purposes:

- To arrange the sale and disposal of fish landed by fishing vessels of members and to establish its own purchase and sale centres if and when required.
- To appoint the mole holders (auctioneers)
- To improve the living standards and conditions of fishermen the community
- To import duty free fishing gears and marine engines;
- To disseminate information on fishing technology
- To provide welfare and medical services to members and their families.
- To open vocational training institutes in the villages of fishermen to train members and their families.
- To provide assistance regarding education including provision of syllabus, uniforms and monthly stipends to schools and other educational institutions.
- To provide relief facilities to its members and their families as and when required regarding education and socio-economic issues.
- To provide group insurance to all the member fishermen in case of accident or mishap and provide immediate compensation to the effected.
- To provide medical facilities at the best of its capabilities to its members and their families.
- To grant advances or loans to members for necessary purchases.
- To purchase and hold improved fishing appliances and crafts to be sold or to be hired to members.
- To disseminate knowledge of the latest improvements in the fishing industry and to encourage its members to adopt them and also to enforce on members of the society the adoption of such latest methods and devices.

A levy of 3.15 % of the total value of the fish sold at auction is charged from the members for various services rendered by the FCS. Since its establishment about 67 years ago, the functions of the society have been adapted to changing circumstances in the fishing industry although rules of membership and objectives have remained unaltered. There is a general dissatisfaction and annoyance among stakeholders about the appointment of an administrator for more than 5 years, major leakages in collection of revenue and alleged misuse of funds.

The society dispense a small fraction of the collected revenue for welfare and providing facilitation for the fishermen whereas the bulk of the collected revenue is spent on non-development activities mainly on exorbitant salaries of excessive staff. The principle activity of the FCS is the operation of the fish market and conducting auction through authorized "mole holders". There are only 31 authorized mole holders but auctions are being illegally conducted by a large numbers of other middlemen (called Mehta or Beoparies). The maintenance and cleanliness of the auction halls and adjacent areas is the responsibility of the FCS but the prevailing unhygienic conditions and the way the auction is being conducted speaks of total lack of control by FCS. It is generally believed that because of the high volume of fish being handled at the Karachi fish harbour, it is unlikely that all sales are properly recorded and there is a strong likelihood that not all sale levies are collected. Connivance of the FCS in under reporting of catch and recording them at low rates are also considered to be major factors in shortfall in revenue generation.

In addition to the Government agencies and the FCS, there are a number of other groups, NGO's, CBO's and activist groups who are involved in fisheries related activities. The prominent among them are the Sindh Trawler's Owner and Fishermen Group (STOFA), the Karachi Mole holder Groups, the Pakistan Fisherfolk Forum, and the Balochistan Mahigeri Network. Some of them are playing an active role in raising fishermen's voices.

The delegation visited the office of the Administrator Mr Abdul Saeed Khan Baloch and the Secretary Board Mr Mohammad Abid Arifeen who apprised the members of various activities being undertaken by the Society.

The FCS senior management put recently in charge has announced a change from past practices, to focus on the original purpose of the cooperative, i.e. welfare of their members, with health and education first priorities.

Attention has to be given to the smaller commercial and often informal landing sites (jetties) and the small informal sites scattered along the coast and used by small scale artisanal fishers. At the moment most of these sites lack basic conditions

for sanitary and hygienic handling, storage and transport of landings. With improvements of handling, storage and transport conditions, these jetties could be an alternative to the overcrowded KFH and, possibly, help to ease the dominant role of FCS there and open the way for Public Private Partnership arrangements38.

To provide cost effective and sustainable improvement for the dispersed landing sites catering for small scale fishers it is proposed to improve strategically best placed landing sites for clusters of small scale fishers and to discourage anarchic sites. This may be a way to overcome one of the main problems with dispersed and informal landing sites: In most cases, dispersed location and poor organization and management do not allow compliance with certification and traceability, which excludes artisanal landings from value added marketing.

For all segments of the post harvest sector Paragraph 71 of the IPOA-IUU fishing is pertinent. It urges “States to improve the transparency of their markets to allow the traceability of fish or fish products. The concept of traceability is related to that of certification, but differs in one important respect. The certification schemes seek to allow a State to determine where and when a fish was harvested and by whom. Traceability seeks to allow a given product to be traced through all stages of production and distribution, not just at the moment of importation, landing or transhipment.”

3.6.2.2 Plans/Activities to Improve the Post Harvest Sector

The deficiencies in the present post harvest practices in Sindh province are complex and multifaceted. Political agendas appear to interact with vested economic interest, and change to the better, i.e. pursuance of the common good instead of short term economic and political gain will need time and perseverance. Strategies, plans and activities will have to be elaborated according to the implementation strategy proposed below, on the base of best available knowledge and following lessons learned in Pakistan and best practices, or downfalls, reported from the international stage. Some tentative plans and activities could include:

- Assessment of the feasibility, technically, economically and politically, of co-management/Private Public Partnership arrangement for both KFH and KoFH as outlined above.
- Survey of all jetties and landing sites, to enumerate owners/operators, facilities, clientele fishers, supply and value chains etc. and identification of short, medium and long term measures to improve conditions, including legal status, security, disaster prevention and preparedness, health issues and gender considerations, and preparation of a respective master plan.
- Strengthening inspection, certification and enforcement of other regulations, including by institutional support, capacity building and industry based funding mechanisms.

[38] The legal status of these jetties or unclear at present; officially their operation has to be authorized by provincial authorities (Karachi Harbour Trust). Legal provisions for this are derived from pre-independence legislation, however, and may warrant review/revision.

- Assessment of incentive schemes to improve on board handling and storage, rewarding boat owners for compliance and participation in fleet/effort reduction efforts.
- Evaluation of pertinent child labor and human trafficking problems in the sector and identification of strategies to eliminate abusive practices.
- Introduction and enforcement of international labor standards in all post harvest operations.

3.6.3 Implementation Strategy

The institutional landscape of Pakistan's fishery sector consists of several groups of stakeholders with different, diverse and conflicting interests[39], i.e.:

- Public sector stakeholders on federal level as MFD, FDB, MSA, KoFH and DOF and KFH on provincial level
- Private sector stakeholders as STOFA, PSEA and mole owners/middlemen groups, and bodies like FDB supposed to bridge public and private sector interest,
- Civil society organizations as the INGOs IUCN and WWF, and organizations of bona fide fishermen with varying degrees of representativeness and legitimacy, and organizations with agendas pretending welfare functions while, allegedly, expending only fractions of the considerable rent extracted for this purpose, as the FCS.

Integration and cooperation between these entities appears to be marginal, not structured and/or institutionalized and, more often than not, interaction, whether collaborative or not, is on an ad hoc basis. There is no regular dialogue between the policy makers, legal regulators, enforcement agencies and private sector operators.

The sector has been held hostage by vested interests, formal and informal pressure groups and powerful lobbies. An industry not speaking with one voice has not been able to bring about changes for the better, in spite of their business operations being directly and negatively affected by unsustainable resource use. On the public sector side, fisheries sector development has and is not guided by enforced legal and regulatory functions of sovereign state for the common good, creating a political economical vacuum easily exploited by patronage and cronyism for short term economic and political gain.

Critical divides separate policy making and enforcement and sometimes prop both sides against each other. A recent example is the intend of policy makers to stop construction and licensing of additional vessels versus the plan announced by the MSA to auction off some 300 confiscated Indian fishing vessels, amounting to a *de facto* increase in fleet size and effort (the vessels be registered by the Mercantile Marine Department, and, once registered, would have to be issued a license)[40].

Observers note departmental barriers between affecting e.g. internal information exchange and information exchange between public sector administrations and private sector players. A common characteristic of all stakeholders is the limited to inadequate capacity in terms of technical knowhow and human resources; also, line ministry and public functions in general are hampered by the top heavy bureaucratic hierarchy of the Civil Service.

[39] An in depth assessment of the institutional setting of the sector is given in UAID FIRMS Project study op.cit.
[40] The use of extremely small mesh size nets (mosquito nets) was reportedly originally triggered by the sale of such nets confiscated from Indian trawlers, by the MSA.

These problems are, however, not exclusive to Pakistan or Sindh. The box below summarizes respective findings worldwide and mirrors, to a considerable extend, the present situation of fisheries governance in the province.

Box 10 Understanding power relations and dynamics[41]

Power differences might exist among stakeholder groups, e.g. between large industrial companies and small-scale fishers, or between different social groups within a fishing community, or between democratic versus authoritarian or modern versus traditional leadership structures. Such power dynamics often determine the willingness of stakeholders to participate in policy and management processes relevant to EAF management. Uneven power relations (whether perceived or real) are likely to result in limited or skewed involvement by relevant stakeholders, with the result that certain interests are not represented and decisions may lead to inequitable outcomes. Hence, understanding power relations is important to allow for effective participation of different stakeholder groups in the EAF process. Signs that indicate uneven power relations include:

- patronage, which perpetuates powerlessness of vulnerable groups by maintaining dependency rather than increasing self-reliance;
- political manipulation and co-optation by powerful forces, including fisheries authorities;
- lack of accountability or mandates of representatives.
- assumptions that a move toward equity can be achieved without empowerment and capacity building;
- representation and pursuance of individual interests rather than the interests of society or resource users;
- frequent infractions of the rules that remain uncontrolled; and
- lack of clearly defined use and management rights.

3.6.3.1 Implementation Strategy

Institutional and administrative structures and practices have been proven not conducive to policy implementation and operationalization in the past and have effectively left the fisheries sector without comprehensive, transparent and accountable management. The policy framework proposes an alternative implementation strategy. The strategy continues the focus on participatory decision making, equitable and representative stakeholder involvement and mobilization and empowerment of small scale fishers presently excluded from political participation advocated above.

[41] FAO Technical Guidelines for Responsible Fisheries, Suppl. 2, add. 2 The ecosystem approach to fisheries management (EAF), FAO 2009

Box 11 Worldwide Focus on Small Scale Fisheries[42]

The importance of small-scale fisheries and their role as a contributor to poverty alleviation, food and nutrition security, and economic growth are increasingly being recognised. Small-scale fisheries generate income, provide food for local, national and international markets and make important contributions to nutrition. They employ over 90 percent of the world's capture fishers and fish workers about half of which are women.

For many small-scale fishers and fish workers, the sector represents a way of life and it embodies a diversity and cultural richness that is of global significance. Still, in spite of their importance, many fishing communities in coastal and inland areas continue to be marginalized and their contribution to livelihood security, economic development and resource sustainability – benefitting themselves as well as others – is hampered.

Constraints to and challenges in achieving sustainable development in small-scale fishing communities include their often remote location, limited access to social and other services as well as markets, low levels of education and inadequate organisational structures which make it difficult for them to make their voices heard. Many small-scale fisheries are effectively unregulated, unreported and poorly monitored, especially in developing countries and inland water areas. Customary practices for allocation and sharing of resource benefits that generally used to be in place in small-scale fisheries have often been eroded because of centralised fisheries management systems, technology development and demographic changes. Pollution, environmental degradation, climate change impacts, natural and man-made disasters and overexploitation of resources add to the threats faced by small-scale fishing communities. In some places, conflicts with large-scale fishing operations are an issue and there is increasingly high interdependence of and competition between small-scale fisheries with other sectors such as tourism, aquaculture, agriculture, energy, mining, industry and infrastructure.

The central strategic element will be the enactment, by relevant law, of a statutory body, e.g. a fisheries advisory committee or counsel legally mandated to build and sustain the governance capacity required to actively and effectively manage fisheries. To fulfill this mandate, legitimate and equitable basic democratic representation of all stakeholder, public and private sector including organizations of small scale and bona fide fishers is the fundamental requirement. The body would include civil society organizations as NGOs and INGO, academia and other sector players like research institutes. Legitimate and democratic representation will be pivotal for transparency of all decision-making processes and accountability of decision makers, to avoid elite capture and power grabbing by a few or one stakeholder.

The establishment of the fisheries advisory committee or counsel would be pursued and facilitated by a task force comprising selected stakeholder representatives and, if external technical assistance is pledged, the donor agency, under the auspices of an inter ministerial committee. The task force would be incepted immediately after endorsement and adoption of the policy framework by GOS authorities. Terms of reference would include monitoring of legal and administrative processes and efforts to establish the fisheries advisory committee or counsel, drafting of statute and by-laws, code of conduct, public relations etc.

The fisheries advisory committee or counsel should be supported by a technical working group (TWG) divided in sub groups, e.g. for marine and inland fisheries, environmental management and post harvest sector improvement, on a professional basis and remunerated. The TWG would provide the fisheries advisory committee or counsel with recommendations, plans and

[42] International Voluntary Guidelines for Securing Sustainable Small-scale Fisheries, FAO, Rome 2013

activities for sustainable, feasible, acceptable sector development based on competent, scientific data and information. The TWG would draft NPOAs and other management plans, compile and analyze available data and generate additional data and information through stakeholder consultations on district and local level, surveys, case studies, etc. and develop and implement an adequate M&E system. If required, the assistance of short term consultants could be employed and respective budgetary provisions need to be provided.

While the expertise required for the TWG is available in country, the long term recruitment and employment of the core group of permanent experts technical, logistics, funding, support staff will need most probably external assistance and donor support (such as USAID, FAO or similar). The assistance could be structured as a Technical Assistance (TA) Project, possibly assisted by a technical advisor.

3.6.3.2 Roadmap, Activities

At the time of this writing, activities can be proposed only on a tentative basis, because of uncertain time lines, especially regarding the approval/adoption process and, subsequently, availability of technical assistance. Preliminary efforts will depend on available finance; they could include:

- Update and in depth institutional and stakeholder analysis including human and financial resources.
- Assessment of legal requirements for implementing the policy framework following the proposed strategy.
- Preparation of concept notes/project proposals for TA support for submission to external development assistance agencies.
- Involvement of local and national media in creating awareness regarding the problems confronting the sector and in advocating the proposed implementation strategy

As the overall timeframe is uncertain, the following steps cannot be given timelines but sequence only:

Step 1: Submission of the finalized policy framework to GOS (Legal Department, Secretary, Minister);

Step 2: Upon approval, adoption, formation of the task force, lobbying of timely preparation of statutory body, pre selection of members etc.;

Step 3: Foundation of the fisheries advisory committee or counsel, inception workshop with broad participation of all stakeholders, road map for further stakeholder consultations;

Step 4: Formation of TWG, recruitment of experts, formulation of work plans, budget and M&E.

Preceding these steps, a preparatory workshop could be pertinant, once the policy framework is approved and TA support is available.

3.7 Coastal Aquaculture

Aquaculture was not included in the scope of work of the policy framework; a respective policy may be included in later versions of the framework. Coastal aquaculture, however, because it is to some extend intertwined with coastal capture fisheries and environmental governance warrants some consideration here.

In Sindh province, coastal aquaculture has been on the agenda of GOS and private sector investors for some time. There were several attempts to kick start development, e.g. two hatcheries were constructed and coastal land was earmarked by government. However, the hatcheries

were plagued by technical problems and, when these were overcome, by lack of demand. The GOS land provided for shrimp ponds was within the tidal zone and not developed for shrimp culture, leading to the policy being canceled.

Presently, a new lease policy is under debate and coastal areas of the province have been mapped, with sites identified beyond tidal reach[43].

If developed, coastal aquaculture needs to be guided by stringent plans and regulations, to avoid negative impacts. There are many lessons learned, within and beyond the region. Attempts to convert small scale fishers into fish farmers have been failed throughout, for example, because fishers typically lack know how, access to capital and the capacity to take risks. Where development assistance attempted aquaculture development to create alternative incomes, facilities were soon taken over by local business people, as in Cambodia, or larger investors, as in Bangladesh, India and the Philippines.

In Vietnam, the rapid expansion of marine and brackish water cage culture fueled the increase of the “off shore” fleet of mostly bottom trawlers which, because of lack of off shore resources, carries out most of their operations in inshore waters. This has not only led to environmental degradation of the sea bottom and destruction of vulnerable nursery areas as sea grass beds but, because of the use of illegal small mesh sizes, dramatic losses of stock diversity and abundance. Other problems of Vietnam’s aquaculture industry are shown below.

[43] N. Akhtar, pers. communication

Box 12 Unsustainable aquaculture in Vietnam[44]

Aquaculture sector growth in Vietnam has been phenomenal, especially over the past decade. In 2008, Vietnam accounted for almost 5% of global aquaculture output; production had tripled in a decade and outpaced capture fisheries.

However, it is increasingly challenging to sustain the production due to increased risks of environmental pollution, food safety, and disease management. Disease is the largest source of production risk; regarding coastal aquaculture, the incidence and spread of various diseases and viruses poses a threat to the sustainability of shrimp culture. Each year, diseases affect some 30% to 70% of the total culture area, reducing yields and leading many growers to fail entirely. In recent years, many small aquaculture producers have had to abandon their operations due to disease and/or financial problems.

The expansion of aquaculture has contributed to environmental damage, including the destruction of coastal mangrove forests. And, poor environmental management in coastal and inland aquaculture has contributed to water pollution.

To ensure sustainable development, the aquaculture sector should have a clear development plan of improving the quality through promoting better farming practices rather than expanding the culture area.

In order to avoid such problems, strong regulations under a respective legal framework need to be put in place in a timely manner. The MINFAL sector policy formulated in 2007 with assistance of FAO and NACA provides some guidance with the following strategy postulates[45]:

- Guarantee the protection of protected and replanted mangroves of coastal areas from aquaculture operations.
- Develop and enforce measures to prevent damage to aquatic biodiversity by pollution and environmental degradation due to aquaculture operations.
- Establish a regular programme for monitoring of pollution in coastal waters.
- Lobby to ensure that no untreated industrial and domestic effluents are released in high potential zones (prevention of negative impacts on aquaculture activities).
- Ensure that international guidelines regarding the sustainable collection of wild shrimp larvae and management of environmentally-friendly shrimp farming operations are followed.
- Ensure that Ramsar sites located in the Indus Delta and other coastal areas are not affected by coastal aquaculture developments.

Should coastal aquaculture approach a takeoff phase, it is highly recommended to extend the policy framework proposed above to be inclusive of legal and regulatory frameworks building on the above. The Technical Working Group proposed above could be expanded to comprise a sub group on coastal aquaculture. If properly regulated and guided in terms of knowhow, coastal aquaculture may provide alternative investment opportunities for investors exiting capture fisheries because of excess fishing effort.

[44] Adapted from: preparation mission of the Coastal Resources for Sustainable Development Project (CRSD), Government of Vietnam, World Bank, Hanoi 2010

[45] MINFAL 2007, op.cit.

3.8 Tabular Presentation of the Policy Framework

Present Issues and Challenges	Proposed Policy/ Strategies	Expected Outcomes
Overall Dramatic decrease in landings due to overfishing, illegal and destructive fishing and environmental degradation, both in marine and inland waters, causing: suboptimal contribution of capture fisheries to income and employment, food security and sustainable livelihoods of coastal and inland fisher folk, the progressively diminishing contribution of the sector to domestic fish supplies, decreasing or stagnating exports of fish and fisheries products and, dissipation of overall sector rents because of depleted stocks and profound deficiencies in the post harvest sector.	Formulation of a sector policy based on equitable stakeholder participation, including mobilization and empowerment of small scale fishers presently excluded from political participation. Institutionalization of the participatory approach to sector management with a statutory committee or council recommending concrete actions and initiatives concerning the fisheries sector to the relevant political, legislative and executive authorities.	Sector policy framework accepted, shared and implemented by GOS and stakeholders in transparent and accountable fashion. Resource depletion arrested mid term and resources restored long term. Fisheries management inclusive of small scale fishers. Post harvest practices allow for optimal value added
Core problem: Overfishing and illegal fishing, and environmental degradation, result in unsustainable use of living aquatic resources. Overall goal of the policy framework: Fisheries resources, both marine and inland, are exploited in a biologically sustainable, economically viable, socially equitable and inclusive, and environmentally responsible fashion	Access limitations and combating IUU fishing to be implemented by sector administration/enforcement agencies, and community based organizations, are supported by federal and provincial law, and, on province level, there is political will to take the necessary steps to enact and enforce access limitations, beyond considerations of short term economicaland/or political gains.	Responsible fishing of all fleet segments following the CCRF:
Marine fisheries: Overfishing because of excess fishing capacity and overall fishing effort, with the mechanized semi-industrial vessels, in particular the bottom trawlers targeting shrimp being of major significance Illegal, unregistered and unreported (IUU) fishing, non compliance with existing regulations as minimal mesh sizes, prohibition of destructive fishing practices, and closed seasons and closed areas	Formulation and implementation of a National Plan of Action to manage fishing capacity Formulation and implementation of a National Plan of Action NPOA IUU fishing complementing the NPOA capacity to have a policy framework based on best international practices	Fleet size and total effort commensurate with resource sustainability. Management plans are implemented. Enforcement capacities arestrenghthened Destructive and illegal fishing is eliminated, regulations as minimum mesh size are enforced
Inland fisheries: Management of inland fisheries and its environment are largely inexistent. The old contracts system led to the indiscriminate extraction of a maximum of bio mass for short term economic gains. The present licensing system created a de facto open access regime: licenses are provided without considerations of resource availability, further acerbating stock depletion.	Limit access through respective legal and regulatory provisions as the first priority of a subsector policy. Access is regulated through limited licensing of small scale fishers and long term leases combined with stock enhancement and culture based fisheries.	Access is limited/regulated. Representative, legitimate and democratic fisher organizations are facilitated. Long term leases are implemented and regulated as a comprehensively planned policy
Environment Both the marine and inland fisheries ecosystems are under immense pressure, not only from within the sectors, as by over- and destructive fishing, but also from the outside. Main areas of concern are negative impacts of water management devices as dams and barrages, industrial pollution and agricultural runoff and the unabated disposal of raw sew-	Addressing environmental issues via community based fisheries management (CBFM) and empowering communities for safeguarding the environment. Establishment of protected areas, seasonal no take zones, for example in known spawning and nursing	Negative impacts of environmental degradation and pollution on inland and marine coastal fisheries are mitigated.

Present Issues and Challenges	Proposed Policy/ Strategies	Expected Outcomes
age in inshore waters, especially in and around Karachi.	areas, larger wetland reserves and flood plains, and fish sanctuaries. Build alliances with other users of aquatic resources in order to deter pollution resorting to the "Polluter Pays Principle".	
Post harvest sector Post-harvest losses continue to be of staggering dimension. Degradation of quality starts on board of vessels because of poor handling and storage practices and continue on shore, with bad handling practices at auctions, during transport and in cold storage facilities. Processing practices comply only by a small margin with international quality, sanitary and hygiene standards.	Provide incentives to improve handling and storage on board for boat owners to invest in improved facilities closely linked to efforts to reduce fleet size, not encouraging substitution of effort and/or increased efforts (perverse incentives). Improved management of ports and jetties by fostering Public Private Partnerships. Improve landing facilitiesfor small scale fishers by upgrading strategically best placed landing sites to encourage "clustering" of small scale fishers	Post harvest losses are significantly reduced by improveed handling, storage and transport practices, supply for domestic and export markets is optimized in line with resource utilization, sanitary and hygiene standards allow optimal value added.
Coastal Aquaculture Coastal aquaculture, however is intertwined with coastal capture fisheries and environmental governance	Coastal aquaculture development needs to be guided by stringent plans and regulations, to avoid negative impacts.	Well regulated and guided, coastal aquaculture provides alternative investment opportunities for investors exiting capture fisheries because of excess fishing effort.

Implementation Strategy		
Problem Lack of integration and cooperation, no regular dialogue between the policy makers, regulators, enforcement agencies and private sector operators. Industry not speaking with one voice; political economical vacuum easily exploited by patronage and cronyism for short term economic and political gain.	Strategy Participatory decision making, equitable and representative stakeholder involvement and mobilization inclusive of small scale fishers. Enactmentof a statutory body, e.g. a fisheries advisory committee or counsel legally mandated to build and sustain the governance capacity and to actively and effectively manage fisheries. Supported by technical working group (TWG) to provide the statutory body with recommendations, plans and activities for sustainable, feasible, acceptable sector development based on competent, scientific data and information.	Road map Step 1: Submission of the policy framework to GOS (Legal Department, Secretary, Minister); Step 2: Upon approval, adoption, formation of the task force, lobbying of timely preparation of statutory body, pre selection of members etc. Step 3: Foundation of the fisheries advisory committee or counsel, inception workshop with broad participation of all stakeholders, road map for further stakeholder consultations; Step 4: Formation of TWG, recruitment of experts, formulation of work plans, budget and M&E.

4. Annexes/ Appendices

Annex -1 Draft Policy Document

Draft

USAID Firms Project
May 2014-05-03

Contents

Preamble

The draft policy proposed here was formulated in consultation with and participation of major sector stakeholders during April/May 2014. It is based on an assessment of past and present fisheries sector management, management measures in place, enforcement of legal and regulatory provisions, environmental issues and challenges affecting the sector, deficiencies in the post harvest sub sector and institutional, socioeconomic and equity aspects of present sector development trends. A more in depth discussion of these and other related aspects and issues is provided in the technical report from which the draft policy is derived.

The draft policy is envisaged to undergo consultations with stakeholders on province, district and local levels under the auspices of the Ministry of Livestock and Fisheries, and relevant comments will be used for adjustment; it may be complemented by an aquaculture sub component policy at a later date. It is therefore important to emphasize that the draft policy needs to be considered a “living document”, and not a blue print frozen in time.

For this reason, and committing to the advocated participatory approach to sector management, the draft policy proposes strategies and plans/activities to achieve strategies and goals on an indicative basis only. Even considering the most valuable inputs from the consultation efforts, the assessment on which it is based can be no more than a “snap shot” image of the present situation, compiled and interpreted by the author.

For this reason, and to facilitate a process of identification, formulation, implementation and monitoring and evaluation of fisheries management measures based on broad stakeholder participation, the draft policy advances an implementation strategy and a way forward, including options for technical and financial assistance.

The strategy foresees the institutionalization of the participatory approach to sector management with a statutory committee or council recommending concrete actions and initiatives concerning the fisheries sector to the relevant political, legislative and executive authorities. The committee or council will represent all sector stakeholders; have a statute, terms of reference, by-laws and regulations. Decision making will be democratic and transparent, based on the best available scientific data information and advice provided by a technical working group, and subject to monitoring, evaluation and adjustment. In this way the policy is envisaged to overcome institutional and administrative constraints which have obstructed implementation of earlier sector policies.

The implementation strategy is not a policy instrument but a plan of operation for the implementation of the draft policy. It is therefore not included in this document but attached as an appendix.

Vision

Problems, Issues and Challenges

The three policy goals for fisheries presently set by GOP are (i) increased economic growth, (ii) poverty alleviation, and (iii) food security.
These policy goals of GOP reflect, in their broader sense, major issues and problems of the sector reported by stakeholder and resource persons consulted which are:

- significant decrease in landings due to illegal and overfishing and environmental degradation,
- suboptimal contribution of capture fisheries to income and employment, food security and sustainable livelihoods of coastal and inland fisher folk,
- reduced contribution of the sector to domestic supply and to export of fish and fisheries products, and
- dissipation of sector rents due to depleted stocks and acerbated by profound deficiencies in the post harvest sector.

If fisheries resources have been depleted to the extent where certain stocks will ultimately collapse, livelihoods will be lost, food security will be impaired, supply uncertainty will disrupt domestic supply and value chains and exports, and the sector's contribution to the economy will become insignificant.

Issues and problems identify the core problem of sector development as:
Overfishing and illegal fishing, pollution and environmental degradation result in unsustainable use of living aquatic resources.
The hypothesis put forward for the formulation of the draft policy is that only if resources exploitation becomes sustainable again can other problems, issues and challenges be tackled.

Overall Goal

The overarching goal of the policy is proposed therefore as follows:
Fisheries resources, both marine and inland, are exploited in a biologically sustainable, economically viable, socially equitable and inclusive, and environmentally responsible fashion
Sustainable resource use is not possible without limiting access, either by a limited access regime, or by robustly regulating open access to the resource. This, however, would require changes of the present legal provisions governing access to fisheries resources nationwide. Therefore, achievement of the proposed goal and the implementation of the policy framework will hinge on three assumptions, i.e. that (i) access limitations can be implemented by sector administration/enforcement agencies, or community based organizations, or both under a co-management arrangement, (ii) are supported by federal and provincial law, and (iii) on province level there is political will to take the necessary steps to enact and enforce access limitations, beyond considerations of short term economical and/or political gains.

Pursuance of this goal complies with international best practice as the postulated by the FAO Code of Conduct for Responsible Fisheries (CCRF), Art. 6.3:

"*States should prevent overfishing and excess fishing capacity and should implement manage measures to ensure that fishing effort is commensurate with the productive capacity of the fishery resources and their sustainable utilization".*

Strategies

Strategies derived from the overall goal above address the issues of overfishing/illegal and destructive fishing in both inland and coastal marine waters, environmental degradation and pollution, post harvest issues, options for future effective management arrangements of the sector and cross cutting socioeconomic, human rights, gender, poverty and institutional aspects,. The

underlying strategic element which should be applied rigorously is the precautionary approach of the CCRF, Art. 7.5:

"States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures".

Marine Capture Fisheries

For marine capture fisheries, the draft policy focuses a priori on the prerequisite of sustainable resource use. There are two major drivers of stock depletion; overfishing and illegal fishing. Therefore, the policy proposes to follow two voluntary instruments put forward by FAO's CCRF, i.e. the International Plan of Action (IPOA) to manage fishing capacity and the IPOA to eliminate and deter illegal, unreported and unregulated (IUU) fishing, by formulating respective National Plans of Action (NPOAs).

Addressing overfishing, the NPOA to manage fishing capacity in the province will focus on the fleet section most pertinent for capacity management: the mechanized semi-industrial vessels, in particular the bottom trawlers targeting shrimp. They are central to overfishing and resource depletion because of (i) their numbers, estimated at about 2500, far beyond the recommended maximum (below 1000), (ii) because they employ mesh sizes ("mosquito nets") in their cod ends, which unselectively catch 95 and more percent of so called "trash fish", including large quantities of juveniles of potentially very valuable demersal species, and (iii) inevitably destroy the seabed.

Other fleet segments including gill/drift netters and small scale artisanal bottom trawls add to total effort and contribute to overfishing, together with illegal and destructive gear addressed below, i.e. to a total fishing effort which has led to catastrophic losses of stock abundance and diversity. The proposed NPOA capacity aims a priori at reducing fleet size by input controls and technical measures as closed seasons and closed areas. Output controls, e.g. restrictions on catches and landings are not proposed at present.

The NPOA will build on, review and, if warranted, revise existing legal and regulatory provisions targeting capacity management, recommend measures to improve enforcement and identify further input and output controls (as required and if implementable) and technical measures to bring fishing capacity to sustainable levels.

All activities under the NPOA need to be inclusive of the most vulnerable fishers, i.e. the traditional, resident bona fide fishermen who depend on fishing for their livelihoods as a last resort. Their dependence and vulnerability result from their low socio political status and lack of legitimate, democratic representation and, compared to migrant wage labour and investors from outside the sector, extremely limited geographical and occupational mobility.

The NPOA postulates participatory appraisal and identification of management measures including, but not be restricted to:

- Exploration and assessment of feasibility of strategies to reduce fleet size, as an effective, consensus based moratorium on construction of additional vessels, either by one by one vessel replacement obligation, one to two (or three vessel) retirement arrange-

ments, or by outright buy back schemes. Objective of fleet reduction efforts would be to bring down the number of bottom trawlers to a maximum of 1000 while enforcing compliance with minimum mesh size regulations.

- Enforcement of measures to limit/regulate access through monitoring and restriction of vessel registration and licensing, and according to exiting legal provisions as the closed season for shrimp trawling.
- Strengthening of other enforcement instruments, as Monitoring, Control and Surveillance (MCS) and on board/on shore inspections, comprehensive enforcement of other legal and regulatory provisions of the 1980 Fisheries Ordinance and 1983 subsequent regulations.
- A review and revise present zoning regulations, including considering the option of applying the CCRF ecosystem approach to the fisheries (EAF) in acknowledgement of the actual extend of the continental shelf.
- An assessment of the feasibility and implementation of other technical measures as seasonally closed areas and marine protected areas (MPAs).
- The elaboration, together fishers and other private and public sector stakeholders, e.g. the MFD/FAO Fisheries Resource Appraisal Project and national researchers, of species/species group and gear specific management plans, including respective spatial and temporal restrictions. This Process should include a comprehensive review and, if needed, revision of existing regulations.
- Inception of a comprehensive participatory catch and effort monitoring and processing and management of the data for fisheries management.

The participatory approach is adamant for legitimacy and ownership of capacity management. Top down implementation by sector authorities rarely had any impact on the ground and typically lacks effective stakeholder participation, and transparency and accountability.

Addressing illegal, unreported and unregulated (IUU) fishing, the draft policy proposes the formulation and implementation of a NPOA IUU fishing. In Pakistan IUU fishing takes place predominantly in territorial waters and, in Sindh on the continental shelf, which extends beyond the 12 n.m. zone. The IPOA IUU fishing and subsequent guidelines formulated by FAO are inclusive of illegal, unregistered and unreported fishing in territorial waters:

"Illegal fishing refers to activities conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations,
Unreported fishing refers to fishing activities which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations;
Unregulated fishing refers to fishing activities in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law."

Following these definitions, most coastal fishing activities in Sindh province can be classified as IUU fishing. Most important issue is the continuing and blatant non compliance with existing regulations as minimal mesh sizes, prohibition of destructive fishing practices, and closed seasons and closed areas.

The most devastating impact to resource sustainability and eventual restoration are constituted by destructive fishing practices as use of extremely small mesh sizes in semi-industrial bottom trawls, “katra” encircling nets, and, most damaging, the stationary “bullah” nets and smaller “gujja” trawls operated in estuaries and creeks. All cause mortality of large amounts of juveniles of commercially and economically important species.

There appears to be a general agreement among stakeholders not only to reduce fishing capacity as discussed above, but also to deter and prevent all unselective and destructive gear including bottom trawling using small mesh sizes, and to eliminate bullah nets and trawling in creeks and estuaries. Therefore, the draft policy proposes the NPOA IUU fishing to include:

Elimination of destructive fishing practices, e.g. bullah net operations and bottom trawling in creeks and estuaries. Given the weak and disfranchised organization of fishing communities, especially in the more remote and isolated landing sites, chances for bottom up strategies are not evident at the moment and most resource persons were in favour of applying “force”, i.e. enforcing the law and elimination the nets by designated law enforcement agencies.
To compensate fishers for income losses, financial assistance over a limited period could be considered. Parallel long term efforts would be needed, e.g. training in alternative, selective fishing (gillnets, longlines, traps and pots etc., eventually squid jigging and light fishing) to be employed once the stocks have recovered, together with technical assistance and facilitated market access to improve post harvest practices and value added opportunities.

The draft policy proposes, as a central policy option, to introduce right based fisheries management, e.g. to give territorial use rights in fishing (TURFs) to small scale bona fide fishers and their communities and to introduce community based fisheries management (CBFM) and/or co-management. Given the entrenched power structures of the feudal or semi feudal socio political regime in many rural areas, this process will be lengthy and difficult but necessary, not only regarding the need for people based responsible fishing and stock recovery but also regarding universal human rights of fishers, their families and communities. Examples from other fisheries, both marine and inland, show that given the right to manage their resources themselves, and under an appropriate overarching policy framework provided by government, fishers and representative, legitimate and democratic fisher organizations can and will oppose short term financial interests for the sake of sustainable resource use.
The draft policy postulates deterrence of illegal fishing practices, e.g. enforcing gear restrictions as minimum mesh sizes and zoning and closed season regulations., with the aim of replacing destructive gear by more selective and habitat friendly gear. Incentives could include technical assistance (gear technology) and preferential access to alternative gear. Change to selective gear could be linked to fleet reduction efforts, with a vessel construction quota giving preference to vessels employing selective gear.

To facilitate responsible fishing of all fleet segments following the CCRF the policy option proposed is to formulate and implement the species/species group and gear specific management plans recommended above. With respect to gear restrictions and bans of destructive gear, a participative assessment of small scale, artisanal and semi industrial fishing gear should precede potential revisions of present regulations, because gear specific management plans need to be based on broad consensuses in order to be accepted, owned and complied with by fishers.
FAO’s CCRF Art. 7.6.4 recommends in this respect: *“The performance of all existing fishing gear, methods and practices should be examined and measures taken to ensure that fishing gear, methods and practices which are not consistent with responsible fishing are phased out*

and replaced with more acceptable alternatives. In this process, particular attention should be given to the impact of such measures on fishing communities, including their ability to exploit the resource."

As for the implementation of the NPOA capacity, implementing the NPOA IUU fishing and ensuring compliance will require improved enforcement capacity. Enforcement, including MCS, is a pivotal instrument for the implementation of the draft policy or any other natural resource management policy. and of central relevance for all sector components, and the recommendation to review of present practices above is reiterated. It should focus on planned and executed enforcement and MCS activities, the institutional set up including status/capacity of inspectors, practice of inspections on board and at sea, reporting and follow up, and the need for collaboration of MCS agencies (MSA, Coast Guard) with the fisheries administration.

Inland Fisheries

Multipurpose use of inland water resources is governed by multiple legal and regulatory frameworks, with national and provincial policies which typically give preference to non fisheries users. As a result, inland fisheries management authorities often have little control over the resource they are mandated to manage; presently, there is little effective management of inland fisheries and the environment.

The subsector was historically governed by a dichotic system of large scale fishing by contractors and atomistic small scale fishing by indigenous or migrant fishers, often as a last resort. The most productive inland fishing grounds of Sindh province were exploited by contractors comprising local landlords or other influential people under limited term lease agreements, which led to the indiscriminate extraction of a maximum of bio mass for short term economic gains and consequent dramatic losses in abundance and diversity of stocks.

In 2005, pressure by civil society and advocacy groups on the one side, and significant dissipation of economic rent (despite marginal labour costs) from large scale lease operation on the other led to the abandonment of the contact/auction system. The system was replaced by licensing, which created a de facto open access regime: licenses are provided without considerations of resource availability, further acerbating stock depletion.

The draft policy proposes rethinking of past approaches to management (or the lack thereof), realizing that limiting access is the first priority of subsector management. Limiting access requires respective legal and regulatory provisions which will have to take equity considerations as well as economic aspects into account.

With respect to equity the draft policy focuses on the deprived indigenous small scale fishers and their communities, and related gender considerations. This can be done sustainably if conditions similar to those postulated for small scale coastal fishers are met:

- Empowerment of fishers through representative, legitimate and democratic fisher organizations is facilitated and sustainable.
- Legal provisions to allow for right based fisheries, Community Based Fisheries Management (CBFM) and/or co-management are developed and enforced.

- Right based fisheries, CBFM and co-management are based on locally developed management plans elaborated with the full participation of resource users under conditions of basic democracy.

The draft policy proposes reconsidering larger scale fisheries and culture based fisheries o tions. Such options would involve the granting of leases with the obligation to invest in stock enhancement measures financed by the lease holder under transparent and verifiable conditions. In order to make this approach economically viable for the contractor, lease agreements must be sufficiently long to provide an incentive for long term investment. At the same time enhancement methods and harvesting of enhanced fisheries must be strictly regulated in terms of:

- clear delimitation of the water surface allocated under the lease agreement (to prevent poaching in adjacent areas),
- gear restrictions, output restrictions like minimum sizes and prohibition of destructive fishing methods,
- regulations/international obligations regarding the introduction of exotic species, and
- adherence to international standards of working and living conditions of wage labour employed.

A survey to assess water bodies and fishing grounds according to their best future use, i.e. small scale capture fishing or large scale culture based exploitation and stock enhancement is recommended. The survey should cover potential opportunities for habitat restoration and stock recovery, for example by establishing fish sanctuaries, restore wetlands and no take zones up- and downstream of head works, dams and barrages.

The draft policy proposes to raise the profile of inland fisheries by implementing programmes of awareness-raising regarding freshwater fish bio-diversity, natural fisheries environments and sustainable, responsible fishing.

The CCRF guidelines for inland fisheries refer to this: *"Responsibility for the protection of aquatic ecosystems usually lies outside the fishery. States should, therefore, plan for the conservation of aquatic environments in the context of their multi-purpose use. Many of these activities are fundamental to the functioning of modern society and are economically of such importance that their limitation in the interests of conservation becomes hypothetical. All that can be done in many cases is to keep the number of such interventions to a minimum and to limit their impacts."*

Environmental Issues and Challenges

Both the marine and inland fisheries ecosystems are under immense pressure, not only from within the sectors, as by over- and destructive fishing, but also from the outside. Main areas of concern are negative impacts of water management devices as dams and barrages, industrial pollution and agricultural runoff and the unabated disposal of raw sewage in inshore waters, especially in and around Karachi. Equally alarming are urbanization and housing development, often including land reclamation activities in urban and peri-urban areas, which have led to destruction of mangroves.

Regarding the ongoing deterioration of the Indus ecosystem, which affects inland as well as coastal areas, estuaries, mangroves etc. the lack of establishing a commission/authority to manage the system across provincial borders, is lamentable and not in line with international best practices. Here, apparently singular interests of riparian provinces have prevailed against the national interest of managing this ecosystem holistically for the common good, e.g. by an interprovincial commission or authority.

Regarding environment and fisheries the CCRF Art. 6.8 postulates that: "All critical fisheries habitats in marine and fresh water ecosystems, such as wetlands, mangroves, reefs, lagoons, nursery and spawning areas, should be protected and rehabilitated as far as possible and where necessary. Particular effort should be made to protect such habitats from destruction, degradation, pollution and other significant impacts resulting from human activities that threaten the health and viability of the fishery resources."

The draft policy proposes several strategies to protect the environment. One strategy is addressing environmental issues negatively impacting fisheries via community based fisheries management (CBFM) recommended for marine and inland fisheries. The strategy addresses environmental issues negatively impacting fisheries via the empowerment of communities for safeguarding the environment their livelihoods depend on. Examples from other fisheries in the region, e.g. in Cambodia show that fishers, through right based fisheries management, CBFM and/or co-management and representative, legitimate and democratic organizations, traditional or modern, can successfully protect fishing grounds and critical habitat. However, it has to be reiterated that a prerequisite is an enabling legal framework and political will and resources to enforce it.

Safeguarding the environment will be enhanced by other technical measures as the establishment of marine or other protected areas, seasonal no take zones, for example in known spawning and nursing areas, larger wetland reserves and flood plains, and fish sanctuaries proposed for inland waters above. International best practices have shown that marine protected area (MPAs) can successfully include totally or seasonally protected areas, buffer zones or temporal/gear restrictions only. For Sindh province the identification and implementation of such technical measures will require participatory appraisal efforts and consultations on grass root level as well as advocacy to get fishers and the general public on board.

Linked to this, environmental protection and use of coastal resources, including for fisheries and, possibly, for coastal aquaculture, will be embedded and institutionalized in an integrated costal area management plan, and streamlined with federal and Belochistan environmental and fisheries sector policies as part of a larger policy framework.

The CCRF, Art. 6.9 states that: *"States should ensure that their fisheries interests, including the need for conservation of the resources, are taken into account in the multiple uses of the coastal zone and are integrated into coastal area management, planning and development."*

Another strategy is to build alliances with other users of aquatic resources in order to deter pollution resorting to the "*Polluter Pays Principle". This principle was introduced first by the by OECD in 1972 and endorsed by the 1992 Rio Declaration on Environment and Development, Principle 16, which postulates that "national authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."*

Post Harvest Sector

In spite of multiple efforts by sector authorities and support by development assistance agencies over the last decades, post-harvest losses are continuing to be of staggering dimension. It is estimated that more than 70 % of catches arrive at retail outlets and processing plants in conditions critical for human consumption.

Degradation of quality starts on board of vessels because of poor handling and storage practices, e.g. preservation facilities as fish holds are unhygienic and ice is often insufficient and frequently contaminated, and continues on shore, with bad handling practices at auctions, during transport and in cold storage facilities. Similar situations prevail at smaller, informal commercial landing sites and facilities (jetties), and at the landing sites scattered along the coast catering for small scale coastal fishers.

Processing practices comply only by a small margin with international quality, sanitary and hygiene standards. Conditions in most pre-processing facilities, e.g. where shrimp is peeled, are critically unhygienic. Regarding shrimp peeling, serious issues related to human trafficking and child labour have been reported.

There is a plethora of legal and regulatory provisions for post harvest practices, but enforcement of these provisions is inconsistent, hampered by lack of resources and often circumvented by vested interests. A "top down" approach to enforcement is problematic and would probably incur prohibitive costs. Therefore the draft policy proposes strategies aiming at cooperation and consensus where possible, and targeting compliance with international norms and standards to improve competiveness and, eventually, improve access to affluent markets for Pakistani fish and fisheries products.

Regarding post-harvest practices and trade the CCRF, Art. 11.1.8, provides guidance as follows: *"States should encourage those involved in fish processing, distribution and marketing to: (i) reduce post-harvest losses and waste; (ii) improve the use of by-catch to the extent that this is consistent with responsible fisheries management practices; and (iii) use the resources, especially water and energy, in particular wood, in an environmentally sound manner."*

The draft policy proposes strategies to improve handling and storage on board will involve incentives for boat owners to invest in improved facilities and practices, either by subsidies or by preferential access to port facilities. Incentives should be closely linked to efforts to reduce fleet size proposed above, not encourage substitution of effort (except for conversion to selective gear) and not encourage increased efforts (perverse incentives).

Strategies proposed by the draft policy to improve conditions on land will have to address the present situation of the two main fishing ports, the Karachi Fishing Harbor (KFH) and the Korangi Fishing Harbor (KoFH). A holistic approach to create an institutional set up conducive to sustainably improved post harvest practices proposed is a co-management arrangement in the form of Public Private Partnerships.

Under such arrangement provincial authorities and the Marine Fisheries Department as Competent Authority for catch certification would provide and enforce overall regulatory provisions according to its mandate, and private sector players, e.g. marketing agents and companies including processing companies would be allowed access against payment of appropriate fees.

Feasibility of this strategy for KFH will require a rethinking/rearrangement of the present oligopolistic exploitation of facilities by the Fisheries Cooperative Society (FCS). The FCS senior management put recently in charge has announced a change from past practices, to focus on the original purpose of the cooperative, i.e. welfare of their members, with health and education as first priorities.

The draft policy draws attention to the smaller commercial and often informal landing sites (jetties) and the small informal sites scattered along the coast and used by small scale artisanal fishers. The legal position of these facilities is uncertain; most sites lack basic conditions for sanitary and hygienic handling, storage and transport of landings. With improvements of handling, storage and transport conditions, these jetties could be an alternative to the overcrowded KFH.

To provide cost effective and sustainable improvement for the dispersed landing sites catering for small scale fishers it is proposed to improve strategically best placed landing sites to encourage “clustering” of small scale fishers and to discourage anarchic sites. This may be a way to overcome one of the main problems with dispersed and informal landing sites: In most cases, dispersed location and poor organization and management do not allow compliance with certification and traceability, which excludes artisanal landings from value added marketing.

Coastal Aquaculture

Aquaculture policy is not part of the draft policy. Coastal aquaculture, however, because it is to some extend intertwined with coastal capture fisheries and environmental governance warrants some consideration here, as underlined by the CCRF Art. 9.1.2 to 9.1.4:

“States should promote responsible development and management of aquaculture, including an advance evaluation of the effects of aquaculture development on genetic diversity and ecosystem integrity, based on the best available scientific information.
States should produce and regularly update aquaculture development strategies and plans, as required, to ensure that aquaculture development is ecologically sustainable and to allow the rational use of resources shared by aquaculture and other activities.
States should ensure that the livelihoods of local communities, and their access to fishing grounds, are not negatively affected by aquaculture developments.”

In Sindh province, coastal aquaculture has been on the agenda of GOS and private sector investors for some time. There were several attempts to kick start development, e.g. two hatcheries were constructed and coastal land was earmarked by government. However, the hatcheries were plagued by technical problems and, when these were overcome, by lack of demand. The GOS land provided for shrimp ponds was within the tidal zone and not developed for shrimp culture, leading to the policy being canceled.

Presently, a new lease policy is under debate and coastal areas of the province have been mapped, with identified sites beyond tidal reach.
Coastal aquaculture development needs to be guided by stringent plans and regulations, to avoid negative impacts. There are many lessons learned, within and beyond the region. Attempts to convert small scale fishers into fish farmers have been failed throughout, for example, because fishers typically lack know how, access to capital and the capacity to take risks. Where development assistance attempted aquaculture development to create alternative incomes, fa-

cilities were soon taken over by local business people, as in Cambodia, or larger investors, as in Bangladesh, India and the Philippines.

In Vietnam, the rapid expansion of marine and brackish water cage culture fuelled the increase of the "off shore" fleet of mostly bottom trawlers which, because of lack of off shore resources, carries out most of their operations in inshore waters. This has not only led to environmental degradation of the sea bottom and destruction of vulnerable nursery areas as sea grass beds but, because of the use of illegal small mesh sizes, dramatic losses of stock diversity and abundance.

In order to avoid such problems, strong regulations under a respective legal framework need to be put in place in a timely manner. The MINFAL sector policy formulated in 2007 with assistance of FAO and NACA provides some guidance with the following strategy postulates46:

- Guarantee the protection of protected and replanted mangroves of coastal areas from aquaculture operations.
- Develop and enforce measures to prevent damage to aquatic biodiversity by pollution and environmental degradation due to aquaculture operations.
- Establish a regular programme for monitoring of pollution in coastal waters.
- Lobby to ensure that no untreated industrial and domestic effluents are released in high potential zones (prevention of negative impacts on aquaculture activities).
- Ensure that international guidelines regarding the sustainable collection of wild shrimp larvae and management of environmentally-friendly shrimp farming operations are followed.
- Ensure that Ramsar sites located in the Indus Delta and other coastal areas are not affected by coastal aquaculture developments.

Should coastal aquaculture approach a takeoff phase, it is highly recommended to extend the sector policy proposed above to be inclusive of legal and regulatory frameworks building on the above. The Technical Working Group proposed for implementation of the policy could be expanded to comprise a sub group on coastal aquaculture. If properly regulated and guided in terms of knowhow, coastal aquaculture may provide alternative investment opportunities for investors exiting capture fisheries because of excess fishing effort.

[46] MINFAL 2007, op.cit.

Annex -2 Implementation Strategy

The institutional landscape of Pakistan's fishery sector consists of several groups of stakeholders with different, diverse and conflicting interests, i.e.:

Public sector stakeholders on federal level as MFD, FDB, MSA, KoFH and DOF and KFH on provincial level
Private sector stakeholders as STOFA, PSEA and mole owners/middlemen groups, and bodies like FDB supposed to bridge public and private sector interest,
Civil society organizations as the INGOs IUCN and WWF, and organizations of bona fide fishermen with varying degrees of representativeness and legitimacy, and organizations.
Integration and cooperation between these entities appears to be marginal, not structured and/or institutionalized and, more often than not, interaction, whether collaborative or not, is on an ad hoc basis. There is no regular dialogue between the policy makers, legal regulators, enforcement agencies and private sector operators. The sector has been held hostage by vested interests, formal and informal pressure groups and powerful lobbies. An industry not speaking with one voice has not been able to bring about changes for the better, in spite of their business operations being directly and negatively affected by unsustainable resource use. On the public sector side, fisheries sector development has and is not guided by enforced legal and regulatory functions of sovereign state for the common good, creating a political economical vacuum easily exploited by patronage and cronyism for short term economic and political gain.

Observers note departmental barriers between affecting e.g. internal information exchange and information exchange between public sector administrations and private sector players. A common characteristic of all stakeholders is the limited to inadequate capacity in terms of technical knowhow human resources; also, line ministry and public functions in general are hampered by the top heavy bureaucratic hierarchy of the Civil Service.
Institutional and administrative structures and practices have been proven not conducive to policy implementation and operationalization in the past and have effectively left the fisheries sector without comprehensive, transparent and accountable management. The policy framework proposes an alternative implementation strategy. The strategy continues the focus on participatory decision making, equitable and representative stakeholder involvement and mobilization and empowerment of small scale fishers presently excluded from political participation advocated above.

The central strategic element will be the enactment, by relevant law, of a statutory body, e.g. a fisheries advisory committee or counsel legally mandated to build and sustain the governance capacity required to actively and effectively manage fisheries. To fulfill this mandate, legitimate and equitable basic democratic representation of all stakeholder, public and private sector including organizations of small scale and bona fide fishers is the fundamental requirement. The body would include civil society organizations as NGOs and INGO, academia and other sector players like research institutes. Legitimate and democratic representation will be pivotal for transparency of all decision making processes and accountability of decision makers, to avoid elite capture and power grabbing by a few or one stakeholder.

The establishment of the fisheries advisory committee or counsel would be pursued and facilitated by a task force comprising selected stakeholder representatives and, if external technical assistance is pledged, the donor agency, under the auspices of an inter ministerial committee. The task force would be incepted immediately after endorsement and adoption of the policy framework by GOS authorities. Terms of reference would include monitoring of legal and admin-

istrative processes and efforts to establish the fisheries advisory committee or counsel, drafting of statute and by-laws, code of conduct, public relations etc.

The fisheries advisory committee or counsel should be supported by a technical working group (TWG) divided in sub groups, e.g. for marine and inland fisheries, environmental management and post harvest sector improvement, on a professional basis and remunerated. The TWG would provide the fisheries advisory committee or counsel with recommendations, plans and activities for sustainable, feasible, acceptable sector development based on competent, scientific data and information. The TWG would draft NPOAs and other management plans, compile and analyze available data and generate additional data and information through stakeholder consultations on district and local level, surveys, case studies, etc. and develop and implement an adequate M&E system. If required, the assistance of short term consultants could be employed and respective budgetary provisions need to be provided.
While the expertise required for the TWG is available in country, the long term recruitment and employment of the core group of permanent experts technical, logistics, funding, support staff will need most probably external assistance and donor support (such as USAID, FAO or similar). The assistance could be structured as a Technical Assistance (TA) Project, possibly assisted by a technical advisor.

Activities proposed on a tentative basis could include:

- Update and in depth institutional and stakeholder analysis including human and financial resources.
- Assessment of legal requirements for implementing the policy framework following the proposed strategy.
- Preparation of concept notes/project proposals for TA support for submission to external development assistance agencies.
- Involvement of local and national media in creating awareness regarding the problems confronting the sector and in advocating the proposed implementation strategy

As the overall timeframe is uncertain, the following steps cannot be given timelines but sequence only:

Step 1: Submission of the policy framework to GOS (Legal Department, Secretary, Minister);
Step 2: Upon approval, adoption, formation of the task force, lobbying of timely preparation of statutory body, pre selection of members etc.;
Step 3: Foundation of the fisheries advisory committee or counsel, inception workshop with broad participation of all stakeholders, road map for further stakeholder consultations;
Step 4: Formation of TWG, recruitment of experts, formulation of work plans, budget and M&E.
Preceding these steps, a preparatory workshop could be useful once the policy framework is approved and TA support is available.

Preceding these steps, a preparatory workshop could be useful once the policy framework is approved and TA support is available.

Annex -3 Log Frame

Logical Framework			
Hierarchy of Objectives, Outputs and Activities	**Objectively Verifiable Indicators (OVIs)**	**Sources of Verification**	**Assumptions**
Overall Objective Fisheries resources, both marine and inland, are exploited in a biologically sustainable, economically viable, socially equitable and inclusive, and environmentally responsible fashion			
Specific Objective 1 Marine fisheries resources are exploited responsibly and sustainably Output 1.1 NPOA capacity formulated and implemented Output 1.2 NPOA IUU fishing formulated and implemented	Marine fisheries production, stock abundance and diversity have returned to optimal levels (shrimp year 3*, other species year 5*) No of bottom trawlers below 1000 (year 2*) Trash fish make up less that 10 % of catches (year 3*) Bullah nets and bottom trawling in creeks and estuaries eliminated, all fleet segments comply with regulations as min. mesh sizes, closed seasons etc. (year 4*)	MFD statistics, MOLF records, FAO data, media reports,	Access limitations can be implemented are supported by federal and provincial law On province level there is political will to enact and enforce access limitations
Specific Objective 2 Inland fisheries are exploited sustainable, equitable and economically viable Output 2.1 All small scale fishers and their boats are registered and issue of licenses are limited according to resource availability Output 2.2 Suitable water bodies are under long term leases and obligations	All fishers and vessels are registered, licenses are limited according to district/local management plans (year 2*) Lease agreements and regulations made public (notification),	District registers, MOLF records records District/MOLF records, WAPDA records, Media reports, surveys	There is political will to limited access at province and district level Legal provisions are conducive to access limitations Legal provision allow for long term leases

Logical Framework			
to enhance stocks responsibly Output 2.3 Locally developed management plans define limits of small and larger scale resource use and regulate operations	Documented enhancement efforts increase stock abundance Users accept plans and limits		
Specific Objective 3 Environmental degradation of fisheries environs is arrested/mitigated Output 3.1 Communities are empowered to safeguard environment Output 3.2 Protected areas, seasonal no take zones and fish sanctuaries are established Output 3.3 Environmental protection and use of coastal resources are embedded and institutionalized in an integrated costal area management plan Output 3.4 The “Polluter Pays Principle” is build in alliances with other users of aquatic resources in order to deter pollution	Communities assist in documentation/evidencing of pollution (year 2*) Restricted areas are gazetted, delimited and monitored (year 3*) Plans are developed, all users are consulted and participate in implementation (year 2*)	Media reports, legal complaints records GOS MOLF records GOS MOLF records	Political will to confront vested interests and lobbies
Specific Objective 4 Post harvest practices are improved to avoid losses and waste Output 4.1 incentives to invest in improved facilities and practices and linked to efforts to reduce fleet size are in place Output 4.2 Fishing Harbours are operated under Public Private Partnerships. Output 4.3 Smaller commercial landing sites (jetties), are regulated to allow catch certification and traceability Output 4.4 Selected small informal landing sites are improved to encourage clustering of effort	Post harvest losses are reduced to 10 % (year 3*) 80 % of semi industrial vessels have improved on board facilities (year 2*) KFH and KoFH under PPP (year 2*) Pilot operations in place in selected sites (year 2*) Pilot operations in place in selected sites (year 2*)	MFD data, MOLF records MFD data, MOLF records Media reports, MFD/MOLF records MFD/MOLF records MFD/MOLF records	Funds are available Political will to allow PPPs, private sector willing to engage

* counting from start of implementation

Appendix 1 SOW of the Assignment

Chemonics International Inc.
USAID Firms Project

Scope of Work: Support for Policy framework Sindh Fisheries Sector

Work Plan Level #33500, Action #6877, SOW #2136

Scope of Work Summary:

USAID Firms Project is seeking a consultant to draft a Sindh Provincial Fisheries Policy which is consistent with both international best practice and the local context in the Sindh Province. This Policy framework would aim at promoting economic growth in the Fisheries sector of Sindh. This exercise is expected to commence in January 2014 and will be completed by March, 2014.

- Position Title& Department:

Consultant, Sindh Fisheries Sector – Business Enabling Environment

- General Summary:

Fisheries and allied industries are considered some of the most important economic activities in Sindh and support the livelihood of about 1.0 million fishermen living in rural villages. Fisheries are also an important sub sector of agriculture in Pakistan have been steadily contributing nearly 1% to the GDP of the country. Despite several initiatives designed to promote and modernize both the inland and marine fisheries sector, stakeholders are unable to exploit the full potential of improving productivity and profitability. Even though export earnings from Pakistan amounted to US$213 Million in 2012, it is a mere fraction of the potential of the sector to generate earnings in excess of US$ 1.5 Billion.

While Marine Fisheries outside the territorial limit of the Provincial Government are a Federal subject under the purview of the Marine Fisheries Department (MFD), Coastal and Inland Fisheries, which contribute nearly 50 per cent to sector GDP, are a provincial subject managed by the Sindh Department of Livestock and Fisheries (DOF) which is also responsible for promotion and management of aquaculture as well as enhancing fish production through stocking of fish seed in natural as well as in man-made reservoirs, dams and other water bodies.

The Provincial Fisheries sector has registered a decrease in productivity and suffers from a lack of capacity amongst the public and private sector to manage production and marketing of Fisheries under their purview, particularly overexploitation, and unhygienic conditions across the supply chain ranging from the circumstances at fishing vessels and conditions in landing sites, to conditions in processing establishments.

The Provincial Fisheries sector has no overarching policy framework to govern the sector. The Government of Sindh has passed the Sindh Fisheries Ordinance (1980) which gives the Sindh Government extensive powers to regulate Fisheries in Sindh, including banning illegal gears, closed areas and seasons. Various amendments have been made covering, most recently, mesh size regulations and licenses for inland water fisheries but no provision has been made to regulate other aspects such as aquaculture as part of a holistic approach to sector governance.

The challenge of this consultancy is to draft a Provincial Fisheries Policy which is consistent with **both** international best practice and the local context in the Sindh Province.

- Objective of the Consultancy:

Objective:	The overall objective of this consultancy is to : i) Review inland and coastal fisheries sector of the province; evaluate their performance against international best practices; review the existing sector policies, laws and regulations ii) Identify regulatory and institutional deficiencies and distortions, if any, in the current provincial policies, laws, and regulations iii) Develop a draft for international best practice Fisheries Policy framework that promotes economic growth in the Fisheries sector of Sindh.

- Principal Duties & Responsibilities:

a. Conduct a background reading of all the relevant literature listed in Annex B of this scope

b. Identify and review all legislation and rules directly and/or indirectly governing the inland and coastal fisheries sector

c. Meet with key stakeholders, including private and public sector players, of the inland and coastal fisheries sector

d. Work in close coordination with the BEE sector specialist and submit deliverables in agreed format according to the time lines prescribed under this scope of work

- Specific Tasks of the Consultant:

The Consultant shall use his/her education, experience, knowledge of international best practices, and additional understanding gleaned from the tasks specified in General Summary (2) and Objectives (3) above to accomplish the following:

a. Review the inland and coastal fisheries sector of the Sindh province; evaluate their performance; compare and contrast them to the top 4 countries with fisheries sector operating under policies, laws, and regulations recognized as international best practices

b. Review the fisheries sector policies, laws, and regulations of the Sindh province, and compare and contrast them to the policies, laws, and regulations governing fisheries in top 4 jurisdictions viewed as having fair, efficient, and growth-oriented markets

c. Identify and detail the deficiencies and distortions, if any, in the current provincial policies, laws, and regulations in enabling the fair, efficient, and growth-oriented functioning of the provincial fisheries markets, and estimate the economic impact of such deficiencies/distortions

d. Prepare the draft Fisheries Policy for the Sindh Provincial Government in narrative and matrix format

e. Identify institutional set-up required to implement the Policy required in (d.) above

f. Design an advocacy strategy for the Sindh provincial ministry to enable acceptance amongst stakeholders of the reformed law and policy both within and outside the Government

g. Identify the Firms Project priority actions that will implement the advocacy strategy required in f. above. Present in Action plan matrix format

- Job Qualifications

The consultant should hold an advanced degree in law (preferably a Masters) and have 10-15 years relevant experience in most of the areas below mentioned: constitutional framework of Pakistan including separation of Federal and Provincial powers; Fisheries Sector at Federal and Provincial level; drafting of international best practices; policy aspects of institutional governance and management of fisheries.

- Duty Station:

The duty station for this consultancy shall be Karachi with frequent visits to other locations within Pakistan if required.

- Workspace and Use of Personal Laptop and Software(s):

The consultant will use his/her own laptop for the purpose of this assignment. The consultant will also certify that his/her laptop uses licensed software and has the requisite protection against viruses and malware.
Alternately, if he/she requires a project laptop, or any other project equipment, they must sign for issue and return of the relevant equipment.

- Reporting

The consultant shall report to Asif Chishti MD, Specialist, Business enabling Environment, USAID Firms Project

- Duration of the Assignment:

This assignment is planned to take place as per a start date of on or around 01/14/2014 and end date of on or around 04/30/2014 (period of performance) hereto for a total of 33 days LOE, including 3-4 travel days. Last date for submission of the final deliverable/s is 03/24/2014.

- Deliverables:

The following are the key deliverables and their associated deadlines. The time line for the LOE assigned for each activity as mentioned in the following table will be discussed and agreed with technical team and the consultant.

No.	Activity / Deliverable	LOE Required
1.	- Review inland and coastal fisheries sector of Sindh; and compare to top 4 countries recognized for international best practices - Stake holder consultation	5 days
2.	Review fisheries sector policies, laws, and regulations of Sindh (legislative instruments); and compare with top 4 growth-oriented markets	3 days
3.	Identify the deficiencies and distortions, in the current provincial policies, laws, and regulations and estimate the economic impact	1 day
4.	Inception report with key findings and preliminary analysis; including: - Design for institutional set up required to implement the policy **-** Feb 10, 2014	5 days
5.	Draft Fisheries Policy report with all findings, analysis and recommendations; including: - Advocacy strategy for Sindh ministry to enable acceptance amongst stakeholders for the reformed law and policy both within and outside the Government - March 03, 2014	5 days
6.	Stakeholder consultations on the Draft Fisheries Policy report	2 days
7.	Final Fisheries Policy Report for Sindh Government in narrative and action matrix format; including: FIRMS Project prioritized actions that will implement the advocacy strategy - March 24. 2014	7 days
8.	LOE left for additional reviews, meetings and unforeseen work	5 days
	Total	**33 LOE Days**

Appendix 2 Inception Report

Draft

Inception Report, 14. April 2014

Ulrich W. Schmidt

- **Introduction**

The need to put in place a fisheries policy framework for the Sindh province fisheries sector was spurred by several factors and developments:

- The significant decrease in landings due to overfishing and environmental degradation, both in marine and inland waters, causing
- suboptimal contribution of capture fisheries to income and employment, food security and sustainable livelihoods of coastal and inland fisher folk,
- reduced contribution of the sector to domestic supplies and to exports of fish and fisheries products and, thus,
- dissipation of overall sector rents because of depleted stocks and profound deficiencies in the post harvest sector.

The need for a consistent overarching fisheries policy for Sindh became more evident when the GOP devolved functions and responsibilities of fisheries management to the province by 18th Amendment of the Pakistani Constitution of 2011 (see below).

To facilitate the process of formulating the policy framework, the Sindh Department of Livestock and Fisheries (DOF) requested assistance from the USAID Firms Project. Following the request, the Project recruited and fielded (April 2014) an international consultant, Mr. Ulrich W. Schmidt. The consultant was provided with the following objectives for his assignment[47].

- Review inland and coastal fisheries sector of the province; evaluate their performance against international best practices; review the existing sector policies, laws and regulations;
- Identify regulatory and institutional deficiencies and distortions, if any, in the current provincial policies, laws, and regulations; and
- Develop a draft for international best practice fisheries policy framework that promotes economic growth in the Fisheries sector of Sindh.

The consultant arrived in Lahore on April 2nd 2014 and met the responsible senior staff of the Firms project April 3rd for briefing and logistical arrangements. On April 5th he travelled to Karachi where he commenced, together with Dr. Asif Chishti of the Firms project Business Enabling Environment Department, the assessment and consultation process. According to the planned activities and scheduled deliverables (see table below), the inception report was delivered on April 14th 20014.

[47] Scope of Work: Support for Policy Framework Sindh Fisheries Sector, Chemonics international Inc., USAID Firms project, February 2014

No.	Activity / Deliverable	LOE Required
1.	- Review inland and coastal fisheries sector of Sindh; and compare to top 4 countries recognized for international best practices - Stake holder consultation	5 days
2.	Review fisheries sector policies, laws, and regulations of Sindh (legislative instruments); and compare with top 4 growth-oriented markets	3 days
3.	Identify the deficiencies and distortions, in the current provincial policies, laws, and regulations and estimate the economic impact	1 day
4.	Inception report with key findings and preliminary analysis; including: - Design for institutional set up required to implement the policy	5 days
5.	Draft Fisheries Policy report with all findings, analysis and recommendations; including: - Advocacy strategy for Sindh ministry to enable acceptance amongst stakeholders for the reformed law and policy both within and outside the Government	5 days
6.	Stakeholder consultations on the Draft Fisheries Policy report	2 days
7.	Final Fisheries Policy Report for Sindh Government in narrative and action matrix format; including: FIRMS Project prioritized actions that will implement the advocacy strategy March 24. 2014	7 days
8.	LOE left for additional reviews, meetings and unforeseen work	5 days

- **Approach and Methodolgy**

Approach

The approach employed for the formulation of the policy framework for the fisheries sector of Sindh province followed three sequential steps:

- The identification of a sector policy which takes into account the sector objectives as formulated by the provincial competent authorities, in the context of national objectives and the evaluation and validation of issues and challenges confronting the sector at pre-

sent discussed below. Policy goals typically relate to broad postulates as, sustainable resource use, economic growth and employment creation and conservation, poverty alleviation, food security and other MDGs.

- The design of a set of strategies which propose how policy goal(s) should be met, including cross-cutting strategies which would support more than one policy goal.
- The formulation of a plan or plans for the achievement of the proposed strategies and, ultimately, of the identified goal(s). The plan(s) specifies the desired results which, if realized, would support each strategy.

The approach will facilitate the construction of an overall log frame matrix of the proposed policy framework, translating into objective (s), outputs and results. Given the scope and time limits of the assignment, activities to achieve outputs will be proposed, specifying time lines, responsibilities and resources required, only for the Firms Project priority actions as underlined in the Scope of Work (SoW).

Methodology

For the assessment of the present situation of the fisheries sector of Sindh province and the identification of key issues and challenges. The methodology employed expanded on the original objectives and included:

- A review of available documents, technical, legal/regulatory and relating to the institutional and stakeholder landscape of the sector.
- Identification and review of additional documents as required.
- Consultation of sector agencies and other public entities on provincial level.
- Consultation of private sector stakeholders, including fisher and boat owner associations, processing and marketing ventures, trade related organizations, academia etc., within the limits to mobility imposed by the security situation.

Results to date and follow up

The assessment is ongoing, involving interviews and consultations and site visits. Data and information are compiled and processed in a preliminary outline and, later, a draft policy framework. Focus remains on the present situation of inland, marine coastal and marine deep water fisheries of the province, including post harvest and other annex activities, a critical assessment of the existing legal and regulatory framework and its enforcement, management measures and efforts in place, their pertinence, efficiency, effectiveness, impact and sustainability, compliance with national and international laws, covenant agreements and instruments, legally binding or voluntary.

A consultation is scheduled for the beginning of the fourth week of the assignment. It will involve selected stakeholders and resource persons, and identification of gaps regarding e.g. institutional capacities, legal and regulatory provisions, resource and capacity management, including combating, deterring and eliminating illegal, unregistered and unreported (IUU) fishing and deficiencies in enforcement, processing and marketing and equity aspects of sector development.

Outcomes will be consolidated and used to finalize a draft policy framework. The policy framework will be presented to all identified and responsive stakeholders and resource persons for consultation and provision of comments during the fourth week of the assignment.

Based on these inputs, the policy framework will be finalized and presented to the provincial authorities, the latest at the beginning of the fifth week. The final product will include a proposal of a roadmap for a consultative process on district and local levels, to facilitate stakeholder participation and ownership, and a strategy for advocacy as specified in the SoW.

- **3.1. The Proposed Policy Framework**

- **Policy goals**

The three policy goals for fisheries as set by GOP are (i) increased economic growth, (ii) poverty alleviation, and (iii) food security[48].

The assessment effort built on these goals and elaborated, on a preliminary basis at the time of this writing a sector policy framework on the major issues and problems of the sector as identified to date:

- significant decreases in landings due to overfishing and environmental degradation,
- suboptimal contribution of capture fisheries to income and employment, food security and sustainable livelihoods of coastal and inland fisher folk,
- reduced contribution of the sector to domestic supply and to export of fish and fisheries products, and
- dissipation of sector rent due to depleted stocks and profound deficiencies in the post harvest sector

If viewed in terms of causes and effects, it is evident that the first bullet causes all the effects shown in the subsequent bullets. Thus, the core problem to be focused on for the policy framework is overfishing and environmental degradation, i.e. unsustainable use of living aquatic resources. Only if resources exploitation becomes sustainable can the other problems, issues and challenges be tackled. This gain implies that the overarching goal of the policy framework is proposed as:
Fisheries resources, both marine and inland, are exploited in a biologically sustainable, economically viable, socially equitable and inclusive, and environmentally sensitive fashion

It is important to underline here that sustainable resource use is not possible without limiting access. The policy framework will explore needs and means for access limitations, by input and output restrictions and technical measures.

Strategies and Plans

The policy framework proposes strategies and plans for:

- Marine and inland capture fisheries management, including environmental aspects and issues, based on the formulation of an NPOAs to manage Sindhs fishing capacity and to combat Illegal, unregistered and unreported (IUU) fishing , in accordance with FAOs CCRF. Objectives of the NPOAs are resizing of the fishing capacity/effort to levels commensurate with the productive capacity of the resource and to deter and eliminate destructive fishing practices

[48] FAO Pakistan Fishery and Aquaculture Country Profile, Rome 2009

- Improvement of the post harvest sector, including external assistance (possibly as incentives for responsible fishing). Objectives are to reduce post harvest losses for the benefit of domestic market supplies and food security and to increase competitiveness of fish and fisheries products in export markets.
- Improvement of the Institutional framework of the sector with the objective of creating an environment conducive to a better contribution of the sector to local and national economies.
- Inclusive sector management focusing on livelihoods and vulnerability, i.e. on resident small and medium enterprises (SMEs) and small scale bona fide fishers, their families and communities.
- Advocacy and empowerment strategies to ensure implementation of the strategies according to the policy framework and sustainable impacts.

Appendix 3 Persons Met

Lahore (1. to 4. April)		
Ms. Sonnya Valencia	Chief of party	FIRMS Project
Mr. Suleman Ghani,	Senior Policy Advisor	FIRMS Project
Ms. Sonia Seth	Business Enabling Environment	FIRMS Project
Dr. Asif Chishti	Business Enabling Environment	FIRMS Project
Mr. Jazafir Khan	Operations	FIRMS Project
Mr. Johnny Walker	Operations	FIRMS Project
Karachi (5. to 11. April, 27. April to 3. May)		
Fahwad H. Khan	Director, Karachi Office	FIRMS Project
Omar Khan	Operations	FIRMS Project
Ghulam Muhammad Mahar	Director General Fisheries	Sindh province DOFL
Zafar Iqbal	Secretary	Sindh province DOFL
Muhammad Moazzam Khan	Advisor, Marine Fisheries	WWF Pakistan
Faisal Iftikhar	CEO	Fisheries Development Board
Faisal Iftikhar	Chairman	Pakistan Fisheries Export Ass.
Mohammad Alam	Former CEO	Fisheries Development Board
Nadeem Alam	CEO	Dilshad Fish & Shrimp Farms
Shaukat Hussain	Director General	Marine Fisheries Department
L. Paul Fanning	CTA	FAO Fisheries Resource Appraisal Project
Kazim Hussain Jatoi	Managing Director	Karachi Fishing Harbour Auth.
S.M. Tarique	Managing Director	Korangi Fishing Harbour Auth.
Syed Aziz Agha	Representative	International Game Fishing Ass.
Sarwar Aijaz Siddiqui	Patron	Sindh Trawler Owner Association
Habib Ullah Niazi	President	Sindh Trawler Owner Association
Shafi Mohammed Jamod	Ex Vice President, MPA	Fisheries Cooperative Society
Muhammad Tahir Qureshi	Senior Advisor	IUCN Pakistan
Nadeem Mirbahar	Coordinator, Sea Intrusion	IUCN Pakistan
Nasim Akhtar	Sector Expert Fisheries	UNIDO Trade Related TA Progr.
Zeewar Scheik	Consultant	TXT Solaris Decision Support
Nisar Morai	Chairman	Fishermen's Cooperative Society
Islamabad		
Patrick Evans	Country Representative	FAO/UN

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USAID Firms Project
info@epfirms.com